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Address.

RESEARCH PROBLEMS IN TUBERCULOSIS.*

BY EDWARD R. BALDWIN, M.D., SARANAC LAKE, N. Y.,

Director of Trudeau Foundation.

IT may be wondered why there are many questions about tuberculosis, related to its causes, that remain to be answered. Everyone readily understands that a specific preventive or curative treatment awaits discovery, yet fails to realize that many pathways need exploration, which may lead us more surely to the goal of prevention, if not a cure.

This is one reason why the close study of a community, under the admirable system inaugurated here, has a special value for the student of tuberculosis problems. What are these problems?

I shall try to indicate a few of the most important ones without indulging in over-technical terms,—often feared not only by a lay audience but also by doctors whose work is in the arduous daily and nightly visitation of the sick.

I think that there are three main classes of problems that may be taken as applying to all diseases to a greater or less degree.

First, there are the fundamental causes of disease, their origin and the reasons for their existence.

Second, the natural and acquired resistance to disease.

Third, the best methods of prevention and treatment.

In reference to tuberculosis, we already know the nature and actual infective agent in its causation, but we need more light on the origin of the germ. We should like to know why some tubercle bacilli are more virulent than others, and how to distinguish them. We now recognize three main varieties,—those of the human, bovine, and the fowl. There are evidences of intermediate varieties, and yet the main divisions do not change into one another.

Painstaking study has been made and is still in progress to recognize the nature of virulence, *i.e.*, the disease-producing powers of tubercle bacilli. With this knowledge in our possession one can comprehend the advantage of estimating the seriousness or mildness of any individual case of disease.

While tuberculosis does not develop without the bacillus, the body has also to be adapted in some way to form a culture-ground for the germs. It is thus evident that the old inheritance idea may not be wholly cast out. A more fundamental study of heredity is, therefore, important. This will involve especially a comparison between families who have had the disease with those who escape.

In addition to inheritance, there are broad problems of race, soil, climate, geographic posi-

* Read at a meeting of the Framingham Medical Club held under the auspices of the Framingham Community and Tuberculosis Experiment Committee of the National Association for the Study and Prevention of Tuberculosis, Framingham, Massachusetts, November 1, 1917.

tion, diet and habits, as well as chemical and, possibly, physiological functions, that are closely connected with the development of the disease. Much importance was attributed to predisposition to tuberculosis in past years. It is now known that infection is possible to all, and a predisposition is not necessary for it to take place. The result of the infection, however, is probably greatly dependent on still unknown factors of chemical or vital nature.

Infection, therefore, may result in disease or in an insignificant healed nodule never to become the source of further trouble. Why this happens to be serious in the first instance and harmless in the second is more or less a matter of speculation at present. By careful studies of the lives and habits of groups of individuals known to have the infection, but not diseased in the sense of recognizable illness, we hope to elicit some laws which can govern our policies in the prevention of tuberculosis. Here again the conclusions of the community studies may lead to fuller knowledge. On a still larger scale, the records being made by the new armies, by means of more careful examinations than hitherto had been possible, promise to be helpful.

To return to the subject of the varieties of the tubercle bacilli which afflict mankind: It is now a pretty well-established fact that a small percentage (from 6% to 12%) of tuberculous children become infected with bovine bacilli. It varies with different countries and localities. The chief question is: What becomes of the children who recover from the bovine infection? Do they form many of the victims of pulmonary tuberculosis who later acquire the human type of bacilli? It has been exceedingly difficult to find the bovine bacilli in persons who have pulmonary tuberculosis, yet there is no proof that the bovine change into human bacilli while in the human body. The fowl tubercle bacillus is seldom, if ever, the source of danger to mankind, but this also is not satisfactorily settled.

More information is also needed about the age when infection takes place which leads to disease. This is also bound up with questions of race and exposure to infection, the way in which the bacilli find access to the body, and their amount. Some knowledge of these points is obtainable by experimentation and some by observations of years on individuals who have never encountered the bacillus in childhood.

The frequency of adult infection is an important question, as it appears to be relatively infrequent. In most instances of pulmonary tuberculosis it is possible to say that the infection might have occurred in early childhood and youth. On the other hand, such early infections very frequently never spread, leaving one to suspect a second infection as the cause of the ultimate disease.

Whether the bacilli are transmitted directly or not from the mother to the unborn child is a problem that has been fought over for many years. It is known to be possible, but in only a few cases has it been demonstrated. Some color is still left in the idea of such direct inheritance, but it lacks experimental proof and is not seriously held responsible for many cases of tuberculosis.

There are certain periods of life when the disease develops with greater frequency, especially at puberty and in females at childbirth and the menopause. The explanation of these facts is largely guess-work at present, and more intimate knowledge of the physiological and chemical changes taking place may enlighten us. Medical science has expanded its field very much, and in recent years new principles have been discovered that throw into relief new points of view, where obscure ideas prevailed in the past. It is especially in reference to these life-periods when profound changes do take place that modern physiology points to the influence of the so-called internal secretions. Whether from an excess or a lack of some substance tuberculosis is favored, is a distinct problem now being studied.

In addition to these questions as to the age at which infection takes place and the number of times it may happen, there is the determination of the pathways by which it gets in. In this problem we have one of the greatest importance in devising means of prevention. Very much experimental study has been given it, and yet there remain further points to be cleared. In general, one may say the fact is sufficiently well established that inhalation of either dry bacilli in dust or moist bacilli in the form of spray causes most of the infections. The track which they follow after getting into the body through the lungs or intestine is still being studied, and there are probably unusual pathways into the body, such as the skin, the gums, and the inside of the mouth.

These points are more or less important, especially in relation to young children.

The relation of infection to occupations and racial customs and habits is another phase of the same subject. Some trades, such as that of the coal miner, have very little tuberculosis; others no more dusty have a very much larger percentage, possibly because of some peculiarity of the dust. Comparatively little is as yet known of the cause of the high death rate in some dusty trades, and experiments are needed to aid the solution of such questions. Mortality figures give evidence of the fact, but the underlying reasons and the best methods of prevention are yet to be worked out.

Industrial centers are notoriously the places where tuberculosis thrives. Preventive measures are needed, based on the accurate knowledge of the influences favoring the disease, whether due to the occupation itself or to the habits of the people. Much has been accomplished in late

years in the improvement of working conditions, based on general considerations of health, but special causes are suspected that operate directly or indirectly to produce tuberculosis. Hence the value of a systematic campaign like the one being made here. I hope the time will soon come when everywhere the same attention may be given to other communities, and universal principles, found to be related to the development of tuberculosis, shall be followed universally by the application of the same preventive measures. There is, possibly, no other problem of equal importance among infectious diseases, and which is really of national scope.

We may next turn to the subject of even greater importance than infection, namely, that of resistance or immunity to disease. It was once thought that some individuals were immune against infection by the tubercle bacilli, and others susceptible. We now know that anyone can be infected, but that many have a natural or acquired resistance to this disease. It appears also true that from childhood to maturity an increasing degree of resistance accompanies growth, except at the critical ages previously mentioned. The consequences of infection are, therefore, less serious in full-grown persons. They are endowed with stronger defenses than children, and these are quite sufficient in checking the spread of the bacilli.

Many theories have been held about the blood, especially the white corpuscles and their power to destroy the bacilli. It is true that in some diseases the bacteria are readily destroyed in the blood fluids when good resistance is established.

In tuberculosis the matter is more complicated because, while bacilli no doubt do die in the blood under the influence of antagonistic ferments, there are always some that survive and must be disposed of more slowly, if at all. The exact method by which we resist tuberculosis in the cells and tissues is still being studied. Theories held at one time are not tenable now, but each year brings us nearer to the understanding of these delicate processes in the cells of the body. A complete knowledge of these things is necessary before we can work out the best means of prevention by fortifying the body against disease.

It follows that if we knew how the healthy body disposes of the tubercle bacilli, we could expect to know what was lacking in those who do not resist. This means a knowledge of susceptibility,—what it means in terms of blood substances, cells, ferments or chemical substances.

When we observe flat or narrow-chested persons, we speak of them as predisposed to tuberculosis. This is a fact without much explanation except in vague terms, such as deficient expansion, poor circulation or displaced organs.

If we can counteract the functional defects, we are working on the best basis that we know at present. It is entirely conceivable that the real predisposition in such individuals rests on other causes, possibly remediable and not directly the result of flat chests or other deformities. Some of the alleged predispositions to tuberculosis are indeed the results of early infections by the disease itself, which interfere with normal growth, especially of the jaw, spine and thorax. We also know that some degree of immunity to pulmonary tuberculosis may follow tuberculosis in other parts of the body, particularly the lymph glands and bones.

This observation has been the cause of much discussion in late years. The first years of life witness a gradual development of resistance to tuberculosis, which seems in many cases to be due to a species of vaccination. Like one attack of scarlatina or measles, an immunity follows, of greater or less degree, which is sufficient to last through a long life. In the beginning, tuberculosis of slight amount probably acts in the same way. Subsequent infections are less and less likely to occur if the specific influence set in action by the first one is still working to prevent them. One naturally thinks that it would be desirable to have a universal infection for this reason. The difficulty is that there is no certainty that either the dose or the virulence of the bacilli can be known, and that the recipients might be in poor condition to receive the infection safely.

It is, therefore, safer to do away, if possible, with all danger of infection at any time.

Observations have been made to show that peoples that are but recently civilized, or that are still little in contact with civilization as we know it, are extraordinarily susceptible to acute forms of tuberculosis. This is true of the Indians of the Southwest, the Polynesians, and of many nomadic tribes of Asia.

One may actually fear that the "back to nature" cult may have other than social objections unless the world were made safe against the bacillus. We may be well assured that such an involution would take ages to produce. As our city life is now constituted, much undiscovered tuberculosis must prevail. Students of epidemiology give little attention to it because of the futility of attempts to control it by law. Only the really well-marked cases are discovered unless a very thorough examination is instituted, such as has been done in Framingham. The consequence is that tubercle bacilli are so commonly present that few people escape infection, and our efforts must be constant to build up a good resistance, while diminishing the dangers of infection by public and private hygienic measures.

One reason that no harm follows infection in so many people is that they escape other dangers that tend to awaken or spread an innocent tuberculosis. This fact must be carefully noted. Severe influenza, measles, whooping cough, acute bronchitis, and many other acute respira-

tory diseases have much to do with breaking down the normal resistance. Some act mechanically and scatter the bacilli by means of the rapid flow of blood through the lymph glands at a time when the body is weak from combat with another infection. Others doubtless exhaust some important functions of the body cells.

This will also occur in the exposure and fatigue incident to the war.

It has been believed by some that the vaccination against smallpox and typhoid, now generally applied to all the armies, reduces resistance to tuberculosis. While theoretically this may be true, and in isolated cases the coincidence of an outbreak of tuberculosis following vaccination has occurred, there are too many benefited by the protection against these diseases to oppose these measures. The chief objection to it, as now applied, is that it must be done on a large scale, and there is no time to pick those who may be showing symptoms of tuberculosis hitherto unsuspected.

To summarize in review, it may be said that resistance to tuberculosis is not immunity in the absolute sense. The resistance is natural or inherited in part, acquired gradually with growth and aided, to some extent, in many people, by slight infection. It may be broken down by other diseases, by all the hardships of life, by dissipation, by exposure and strain of war, as well as by underfeeding.

We know the main causes of breakdown in resistance, but not the minute changes in the body that make for protection and the reverse.

Finally, I should like to remark on the important subject of prevention of infection and the treatment of those afflicted with tuberculosis.

Sputum prophylaxis is the chief end of all measures taken to destroy the bacilli. This is ascertained beyond question. Were it possible to destroy all sputum as fast as it is expelled, a long step would be taken in prevention of tuberculosis. There is a widespread campaign of education, which has already lowered the death rate perceptibly. If all coughing without covering the mouth could be stopped, another drop in tuberculosis mortality might be expected. If handkerchiefs were abolished and the hands of patients kept clean, another considerable percentage might be cut off the death rate.

In short, if the personal habits of the open tuberculosis patients could be controlled, a very great lessening of tuberculosis should be expected. What would this involve? It would require each individual to expectorate properly and to do it in private, when possible; to use some form of cuspidor, preferably of paper; to cough as gently as possible, with paper or cloth held over the mouth during the act, especially when indoors, where children are present, and to use soap and water frequently on hands and mouth. We know enough about tuberculosis now, in this connection, to prevent it in great measure. The problem is how to get the patients to do these simple things.

In sputum prophylaxis perfection cannot be expected, but relative perfection has been and can be accomplished.

It may be impossible in a home where the mother is ill, but quite practicable where the father or one of the children is the invalid. The social customs of each race and family will often determine what is actually done, in spite of detailed instructions. Hence the slow evolution of the careful consumptive.

Each family is a problem by itself, and each individual presents some phase different from another. Isolation of the bad cougher is imperative where small children are present, for the spray from the sputum is often abundant, soiling hands, clothing, and contaminating food at the table. The mouth and lips are probably less often coated with bacilli than is generally believed, and healthy adults should not fear infection from those sources.

The practice of using a mouth wash after raising sputum is a useful adjunct, though of less consequence than hand-washing, in my opinion.

The protection of food from flies, and from human and bovine bacilli, is of sufficient importance to the infant of healthy parentage, to justify stringent laws. Hence, no care of milk can be too great, nor should it be handled by many persons.

When infection has once entered the home, it is a question what can be done for the children, to avert the disease. Here may be problems of great interest for the teacher and social worker, to fit these children for occupations which require little mental and physical strain. Tuberculosis can be bred out of a family by feeding abundantly, and vigorous physical training to overcome developmental defects while children are still young. Our forefathers in New England believed firmly in the hereditary transmission of the disease, and many are the instances of youth who overcame the inherited weak chest or poor muscular power under the guidance of the family physician. They were wise in their generation.

It has been declared impossible to prevent tuberculosis unless we can isolate all the people who have it,—like the unfortunate lepers of Hawaii.

If that be so, we shall doubtless continue to have the disease for many centuries to come. What is forgotten in such a statement is the gradual control of other diseases that powerfully aid if they do not actually give the start to tuberculosis; also the lessening of poverty and alcoholism, as well as much improvement in living conditions. All of these factors are actually diminishing the incidence and severity of tuberculosis, so that hygiene and sanitation may supplement these and reduce the disease

in the face of a certain number of opportunities for infection.

It has been the dream of medical scientists that we should some day possess a specific preventive inoculation which would confer a lasting protection. Many experiments have shown that certain weak, virulent tubercle bacilli, when inoculated, soon die out or become healed and for the time being—possibly for a year or more—confer a heightened resistance against more dangerous infection.

This method of protective inoculation is entirely analogous to modern anti-typhoid vaccination. It is not so applicable, however; the bacilli are apt to cause unexpected harm, and reinoculation is necessary to maintain the immunity, since it gradually fades away. It has been tried with cattle, but the success was short-lived and it is now considered impracticable and has been abandoned.

Whether or not, instead of a protective inoculation we may discover a method of destroying the bacillus in the body, is a question now uppermost in the minds of the laboratory workers. This hope is now held reasonable because of the success in malaria with quinine and in syphilis with salvarsan. Some chemical compound may be found to compass our dream of the conquest of tuberculosis. Much work has already been done and will be continued hopefully.

Until that goal is reached, the treatment of tuberculosis in the individual patient should resemble the methods of Nature, nor should we interfere too much with Nature by administering depressing drugs.

Rest is the first requisite in active or progressive disease. It is well supported by experience and experiment.

Food in abundance and variety—we have no better medicine.

Fresh air and light, also in abundance.

Regulated exercise during convalescence or quiescence of the disease.

Medication for symptoms as they arise, and chiefly when complications cause severe pain or distress.

Lastly, a wise physician, gifted with common sense and understanding.

These are the great principles of treatment, and, doubtless, they will be required as adjuncts of the greatest specific that the world may yet find.

Original Articles.

THE CARREL-DAKIN METHOD OF TREATING SEPTIC WOUNDS; ITS APPLICATION TO CIVIL SURGERY.*

By G. A. Moore, M.D., Brockton, Mass.,

Formerly Assistant Surgeon, Service B, American Ambulance Hospital, now Base Hospital No. 1, Neuilly-sur-Seine, France.

At the beginning of the present war, wounds were treated according to classical rules plus a certain amount of "faith in God." As a result, the number of deaths from sepsis far exceeded the fatalities on the battlefield. The fact that the recent wars had been fought on virgin soil, containing few, if any, pathogenic bacteria, while the present war, especially on the western front, is being waged over ground that has been under intensive cultivation for years and contains almost every conceivable variety of organisms, was at first given scant attention.

Later, as the bacteriology of the soil was studied and the mortality statistics from sepsis told their terrible story, a "stampede of discouragement" pervaded the ranks of military surgeons, and innumerable ideas for combating sepsis were advanced. Chief and worst among these were the mutilating operations, such as amputations, excisions of ends of bones and resection of joints,—a revival of Civil War surgery in the United States.

By the introduction of these methods sepsis was controlled to a certain extent, but there were many deaths from shock and a large number of those who survived were incapacitated for life. As a result, military surgeons began to look about for some effective germicide to control sepsis and avoid maiming operations. A host of new and old preparations of varying germicidal value were and are still being advocated. Some of these are claimed to be so highly germicidal that the dressing need not be changed for 7 to 14 days, thus giving the patient a rather offensive, though possibly not dangerous, pus poultice. A certain number of these antiseptics have been tested in the laboratory and found to be of value.

It may be of interest to mention briefly a few of these mixtures: H. Vincent[1] recommends dusting war wounds, after mechanical cleansing of the wound, with a powder of calcium hypochlorite and boric acid, 1 and 10 parts. He asserts that this powder has a powerful sterilizing action and seems to ward off gas gangrene. It does not harm living tissues, favors cicatrization, is a hemostatic and may be applied directly to the brain without harm.

* Extracts from papers read before the Middleboro Medical Society, March 14, 1917; Fall River Medical Society, April 11, 1917; Brockton Medical Society, May 10, 1917; Hatherly Medical Society, May 29, 1917.

Delbet and Antoine[2] advocate irrigating wounds with a 12% solution of magnesium chloride, one of whom, Delbet, states that many wounds have been sterilized and closed by this method. These authors advise irrigating with a weak solution of acetic acid M vii to 1 liter of saline solution if the reaction of the discharge is alkaline, and soda bicarbonate in saline solution if the reaction of the discharge is acid.

Cheyrou[3] favors the Mencière method of forcibly spraying all crevices of a wound, after the surgical toilet has been performed, with a solution composed of iodoform, guiacol, eucalyptol, Peruvian balsam, alcohol and ether. This has an embalming effect on the tissues.

The Lemaitre method of painting the entire wound surface with tincture of iodine, after mechanical cleaning out, is well known and extensively used in civil practice.

Anderson and Chambers[4] advise the use of a paste composed of iodoform ℥ii, bismuth subcarbonate ℥i, and liquid paraffine. This is to be applied after cleaning out the wound; the wound is then closed with interrupted sutures. These authors report most gratifying results with the use of the paste.

The hypertonic salt solution dressings of Sir Almroth Wright have been used extensively by British surgeons. This method has been described in numerous articles by the author. A very illuminating communication on saline dressings has been written by Kenneth Taylor[5] which leaves one somewhat in doubt as to the efficacy of this method.

During the early months of the war, when sepsis was taking its heaviest toll from the wounded, Carrel, in conjunction with Dakin, began his researches on the treatment of war wounds with hypochlorites in Tuffier's Clinic at Hospital Beaujon in Paris. And to him, more than to any man in the present war, is due the honor of having arrested the so-called "stampede of discouragement," its resulting mutilating operations and experimentation during this period of the war.

The Carrel-Dakin method has not been universally adopted in French hospitals, but where it has been used it has resulted in an enormous decrease in the number of septicemias, amputations, resections of bones and excision of joints. And since this method has given such gratifying results in the treatment of war wounds and offers a solution to some of the problems in treating sepsis in civil practice a repetition of the method of making Dakin's solution and the principles of the application of the Carrel method of treating septic wounds seems to the writer justifiable.

The Carrel method of treating wounds is based upon the fact that an infected wound, by mechanical and chemical means, can be sterilized or rendered free from bacteria and can then be closed by suture or adhesive tape as is done with a primary aseptic wound.

By mechanical means is understood the thorough and gentle removal of all infecting material, such as pieces of clothing, dirt, fragments of shell, etc.; of all dead tissue and free fragments of bone, and the opening up of all crevices of the wound where bacteria may have lodged.

By chemical means is understood the introduction into all crevices of the wound, by means of rubber tubes, of a solution which is non-toxic, does not injure healthy tissues but dissolves necrotic tissue and is strongly bactericidal.

As Desfosses[6] very aptly puts it: "Pasteur taught surgeons to wash their hands; Carrel has taught them to wash wounds."

For some time before the outbreak of the war Carrel had been studying the sterilization of experimental septic wounds in dogs at the Rockefeller Institute. As already stated, in the fall of 1914 Carrel and Dakin began the study of infected war wounds at Hospital Beaujon in Paris. After many experiments the solution which was finally accepted was prepared in the following manner:

140 gm. of dry carbonate of soda and 200 gm. of chloride of lime were placed in a bottle with 10 liters of water. This mixture was thoroughly shaken for one-half an hour and allowed to settle. Then the clear liquid was siphoned off and filtered through cotton, leaving in the bottle a precipitate of calcium carbonate. Then to the filtrate was added 40 gm. of boric acid and the solution was ready for use. This solution was unsatisfactory, owing to the variations in the amount of chlorine, due to the changes in the commercial chloride of lime. It was also irritating, which was thought to be due to the boric acid.

A change was then made and the "200-100-80" formula was used, which has been described in many articles in the literature and which, unfortunately, is still used by many druggists and hospital pharmacists. Like the first mixture, this solution contained a varying amount of chlorine, since a fixed amount of chloride of lime was used in each mixture. This was remedied by Daufresne[7] who titrated each sample of chloride of lime before making a solution, varying the amount of chloride of lime according to the amount of its chlorine content with a corresponding variation in the sodium carbonate and sodium bicarbonate. This was the method which Daufresne was using when I was at Carrel's hospital in Compiègne in January, 1917. He was experimenting at that time with the electrolysis method, which has since been used by one or two manufacturing houses in the United States.

The armamentarium necessary for making the Dakin-Daufresne solution is simple and can be procured at comparatively small expense. Figure 1 shows all of the necessary apparatus except a small bottle of phenolphthalein. A thorough knowledge of inorganic chemistry is not

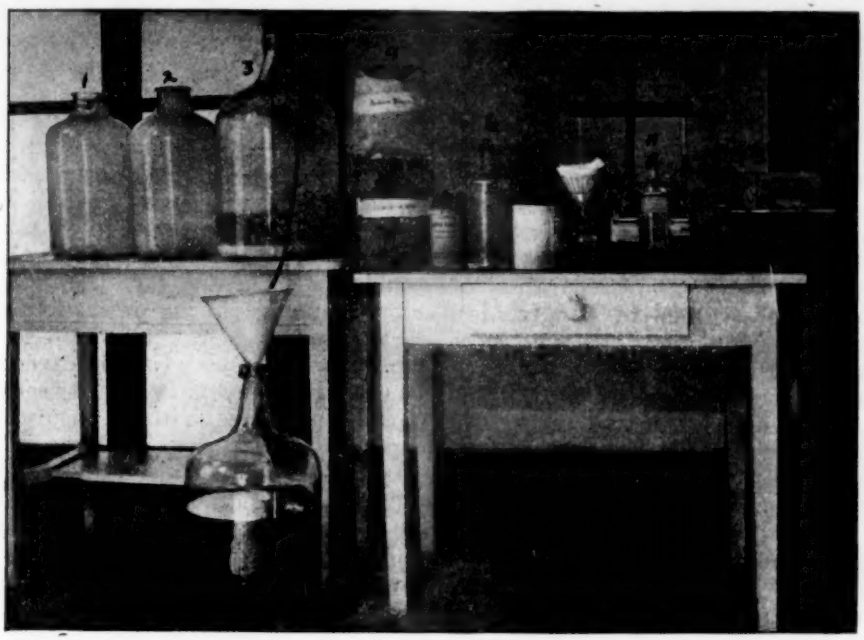

FIG. 1.—Armamentarium for making Dakin's solution: (1, 2) bottles for making small amount; (3) five-gallon bottles with siphon and filter set up; (4) sodium bicarbonate and chloride of lime; (5) sodium carbonate; (6) 20 g. chloride of lime in one liter water; (7) liter measure; (8) three small graduates for measuring c.c. and for titration; (9) burette; (10) 10% KI.; (11) n/10 hyposulphite of soda; (12) glacial acetic acid; (13) balance.

necessary in making the solution, as many have inferred from the literature.

The steps in the process of manufacture are: After mixing the chloride of lime thoroughly, weigh out 20 gm. and put in a bottle containing one liter of ordinary tap water. Allow to stand 6 to 12 hours, shaking 2 or 3 times; then filter a small part of the liter. Take 10 c. c. of the filtrate, add to this in a beaker 20 c. c. of a 10% solution of iodide of potassium and 2 c. c. of glacial acetic or concentrated hydrochloric acid. This will give a mahogany-colored mixture. Then fill a burette with N-10 hyposulphite of soda, such as radiologists use in fixing x-ray plates. This solution is made by mixing 25 gm. of hypo. with 1 liter of water Allow the N-10 hypo. in the burette to fall, drop by drop, into the mixture of chloride of lime, KI and acetic in the beaker until it is completely decolorized. Ordinarily, this should take from 12 to 14 c. c. of the hypo. The number of c. c. of hypo. used, mutiplied by 1.775, will give the per cent. of chlorine in 100 gm. of chloride of lime. Thus, if 13.5 c. c. of N-10 hypo. were used in decolorizing, the per cent. of chlorine in the sample of chloride of lime would be 23.96. By using the table (see Figure 2) given by Daufresne for making 10 liters of solution, it is found that for 24% we need to use chloride of lime 192 gm., dry carbonate of soda 96 gm. and bicarbonate of soda 80 gm. Had we used the "200-100-80" formula, we would have had a mixture containing more than the required amount (0.45% to 0.5%) of chlorine, which would have been irritating on application. Next, put the 192 gm.

QUANTITIES TO EMPLOY IN PREPARING 10 LITERS OF DAKIN'S SOLUTION AT 0.45 TO 0.5% CIONA.

TITRATION OF CHLORIDE OF LIME	CHLORIDE OF LIME	DRY CARBONATE OF SODA	BICARBONATE OF SODA
20	230 G	115 G	96 G
21	220	110	92
22	210	105	88
23	200	100	84
24	192	96	80
25	184	92	76
26	177	89	72
27	170	85	70
28	164	82	68
29	159	80	66
30	154	77	64
31	148	74	62
32	144	72	60
33	140	70	59
34	135	68	57
35	132	66	55
36	128	64	53
37	124	62	52

FIG. 2.—Daufresne's Table.

chloride of lime in a bottle with 5 liters tap water and the sodium carbonate and sodium bicarbonate in another bottle containing 5 liters of water. Shake these bottles from time to time, and allow to stand 6 to 12 hours. At the end of this time, pour the contents of one bottle into the other, shake and allow to stand about one-half an hour until the precipitate has settled to the bottom. Then siphon off the clear fluid, filtering it through a double filter paper into another bottle, and the Dakin's solution is ready for use. This solution should contain from 0.45% to 0.5% chlorine. To test this for chlorine, titrate as before, using 10 c. c. of the Dakin's solution. The

number of c. c. of hypo. used should be multiplied by 0.03725 to give the per cent. of chlorine. Thus, if 13 c. c. of hypo. is used: $13.5 \times 0.03725 = 0.50\%$ of chlorine. To test the reaction of the solution, take a few c. c. in a beaker, drop into it a few grains of powdered phenolphthalein and shake. If the solution has been properly prepared there should be no coloration, while Javelle water and Labarraque's solution will give an intense red, indicating the presence of free caustic soda. The preparation of Dakin's solution, according to Daufresne's method, in the writer's opinion, is simple, does not require a special knowledge of chemistry and has been given here because of the persistent idea in the minds of many surgeons, who have not seen it prepared at Carrel's hospital, that its preparation is beyond the grasp of any but well-trained chemists or pharmacists.

In many of the smaller French hospitals where it is used, Dakin's solution is made by the surgeons or nurses, and in Tuffier's hospital at St. Germain where, next to Carrel's hospital, I saw the best results obtained with the Carrel-Dakin method of any hospital that I visited, the Dakin's solution was prepared by a French orderly.

As compared with Dichloramine-T, Dakin's more recent antiseptic, the manufacture of the Dakin-Daufresne solution is simplicity itself. Dichloramine-T may prove to be less expensive as a dressing for infected wounds than the Dakin-Daufresne solution, but under the present conditions in England and France it can never have the popularity that Dakin's solution has had, since during the time that I was in France, Chloramine-T, a substance very similar to Dichloramine-T, was almost unavailable and, second, it can be prepared only in a well-equipped laboratory under a very painstaking technic. Two of the requisites, especially at the present time, for an antiseptic to be extensively used are simplicity of manufacture and availability.[9] The cost of Dakin's solution is quite a factor when it is used as extensively as in French hospitals. Carrel,[10] in his recent book, gives the cost as .006 or 3-5 of a cent per liter. Buying the materials at retail prices, I have found the cost to be about 9-10 of a cent per liter.

The question of the proper method of preparing a wound for the instillation of Dakin's solution is one over which there is still some controversy between the radicals and conservatives. At first, there was such implicit faith in the power of the solution that very little was done to a wound aside from removing infecting material. The unsatisfactory results which followed caused a revival, to some extent, of the mutilating operations done following the wave of sepsis of the first few months of the war; such as excisions of the ends of bones for fractures near and communicating with joints, wide débridement of the path of the projectile and removing bone fragments, tendons and muscles. As examples of this method, I have seen a bullet wound through the shaft of the tibia, about 3 or 4 inches from the lower end of the bone, treated by a removal of half of the shaft of the bone from the wound down, including the articular surface of the lower end of the tibia. Also, excision of the head of the humerus for comminuted fracture of the upper portion of the shaft. Such operations are pretty likely to remove most of the infected tissues so that there is little trouble from sepsis, but they leave a badly crippled limb requiring extensive reconstruction work later on. Gradually, the pendulum has swung back to a more conservative, rational procedure. Fewer amputations for severe fractures of the long bones, without injury to the main blood vessels, are done, and the number of excisions of the ends of bones has grown less.

The preparation of a wound consists of, first, full anesthesia and rigid aseptic precautions; then the removal of the torn skin edges of the wound, either with scissors or scalpel, opening the skin and soft parts by a generous incision; removal of all foreign matter, such as clothing, dirt, grass and fragments of shell; opening up and exploring all crevices of the wound; removal of dead and soiled tissue and small unattached fragments of bone. Fragments of bone attached to periosteum are left *in situ*. This is followed by careful hemostasis of the entire wound, as Dakin's solution dissolves blood clots and may cause secondary hemorrhage. Carrel advises the use of chromic catgut for ligatures as it resists the action of Dakin's solution best. This, in brief, is the method employed by conservative surgeons. It does not give the brilliant results in avoiding sepsis and the early healing of the wounds that the wide débridements and excisions give, but it gives a better functioning limb and less reconstructive work after any sepsis is controlled.

Through-and-through drainage should always be avoided, where possible, as better results are obtained where the solution stagnates in contact with all parts of the wound and is renewed by fresh solution every two hours. The irrigation tubes in such a wound should be carried to the bottom of the wound so that the fresh solution is injected into the depth of the wound, thus forcing out all necrotic material, discharge and old solution.

In regard to the apparatus necessary for the instillation of the solution, I am not of the opinion that the exact apparatus, as prescribed by Carrel, is essential to success; that any infringement on his rules "spells failure." Glass tubes, 2 to 6 branches distributors, and storage tanks made by Fontaine or Gentile of Paris, or by some of the commercial houses in the United States, add much to the appearance of the dressing, but have no bearing on the result.

The absolute essential in doing a dressing, as in all apparatus used about the wound, is asepsis. Whether rubber tubes 4 mm. in diameter

or 3 mm. are used; whether the syringe de Gentile or a syringe of the Triumph variety is used; so long as air-tight asepsis is preserved, the results will be the same. The old axiom that however septic a wound may be, new strains of bacteria may be added, is accepted literally by the men who really follow Carrel's technic. All dressings should be done with sterile instruments, hemostats or forceps; sterile gloves are worn, but never should come in contact with the wound or any of the dressing materials used.

After removal of the soiled dressing, the skin about the wound is cleaned with naphtha, then the skin near the wound and the wound itself are washed with sterile pledgelets of cotton wet with salt solution or neutral oleate of soda, followed by salt solution. If the wound is a cavity or sinus, it should be irrigated with Dakin's solution. After drying the skin about the wound, it is covered with sterile yellow vaseline spread on with a sterile throat stick or, as is more frequently done, the skin is covered about the wound with a two-inch bandage which has been cut into six-inch strips, saturated with yellow vaseline and sterilized. If the wound is on the upper side of a limb the skin on the under side of the limb should be protected with vaseline, as Dakin's solution is irritating to some patients' skins. If the skin is not thoroughly protected with vaseline, small pustules form, which are uncomfortable and delay healing.

The wound is now ready for placing the irrigating tubes. Formerly, in surface wounds a thin layer of gauze was placed over the wound to keep the wound saturated, and the tubes placed on this. It was found that a thin film of muco-pus formed on the side of the gauze next to the wound, which prevented the solution from coming in contact with the wound when injected. In surface and penetrating wounds or cavities drained from the upper surfaces of a limb, rubber tubes should be placed in *contact* with the wound. The tubes on surface wounds should be tied off at the distal end and be perforated with 1 mm. holes one-half inch apart, the length of the tube corresponding with the size of the wound, so that when solution is injected, it is sprayed over the wound. Enough tubes should be used to insure spraying the entire wound. In wounds with a cavity or sinus draining from the superior aspect of the limb, an open-end tube with no perforations in the walls should be used. If, as occasionally occurs in a sinus wound, the sinus attempts to close near the surface, leaving an infected cavity below, the sinus should be enlarged, two large tubes inserted to prevent closure and the Carrel tube placed between these. In surface wounds which are not horizontal as the patient lies in bed, care should be exercised in placing the tubes that they remain at the upper part of the wound, so that the solution runs down over the wound when injected. If this precaution is not taken, the upper part of the wound will not be flushed when the solution is injected, and the result vitiated.

In dressing perforating wounds, if extending from the superior to the inferior aspect of a limb, the orifice on the inferior aspect should be packed with gauze to prevent the solution running out at once, or the wound should be filled with gauze and a perforated tube inserted in the center of the gauze so that the gauze is kept soaked with solution.

Perforating wounds after the wound on the superior aspect has healed, or wounds penetrating the inferior aspect of a limb, are best treated by placing the patient in the ventral position. This point was well illustrated in one of my patients, a case of compound fracture of the shaft of the femur with a perforating wound, the wound on the inferior aspect of the leg healing rapidly when the patient was placed in the ventral position. See Figure 3.

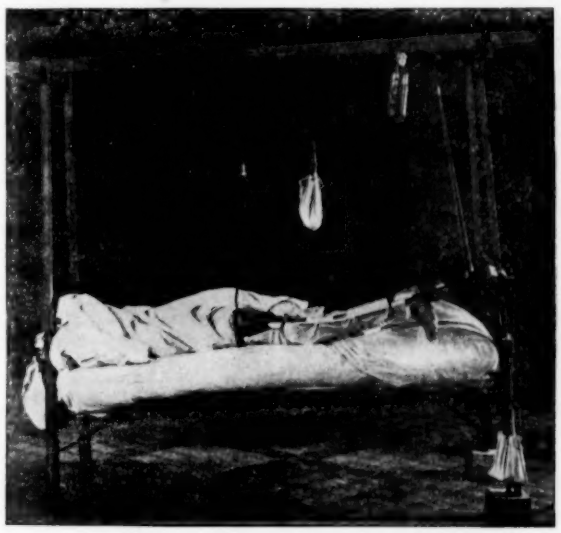

FIG. 3.—Compound fracture of left femoral shaft, perforating wound by *éclat d'obus;* wound on superior surface healed, wound on inferior surface treated by ventral position with extension in usual way. Rapid healing.

Perforating wounds are difficult to treat by the Carrel method as the gauze placed within the wound is saturated with Dakin's solution diluted with muco-pus from the wound, which is found, on taking smears from it, to contain many bacteria. This fact is made much of by Delbet[11] in his criticisms of the Carrel method. In such cases smears taken from the wound surfaces show a successively decreasing bacterial count, which Delbet does not take into consideration.

The Dakin's solution may be conveyed to the wound by means of a syringe, injecting each tube separately. This method is less effective than other methods, as there is danger of contaminating the outer end of the tube in the dressing. It is much more work than the second method. Also, in some hospitals I have

seen the same syringe and bottle containing the solution carried from one patient to another. This is mentioned only to be condemned, as there is always danger of infecting the syringe when the solution is injected. Where the syringe method is used, there should be a separate syringe and bottle of Dakin's solution for each patient.

The second method consists in connecting the tubes entering the wound with distributors (see Figure 4), these to be connected by rubber tubing with a storage flask placed some 18 inches to 2 feet above the level of the wound. By opening a pinchcock on the tubing the solution is allowed to flow into the wound. This method of flushing the wound can be carried out by orderlies in the hospital.

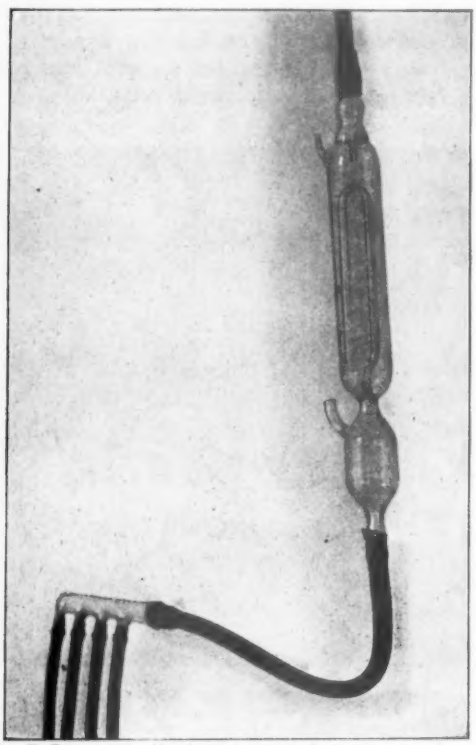

FIG. 4.—Tuffier automatic irrigator attached to tube from tank above and to tube leading to distributor to wound.

Tuffier[12] has devised a very ingenious automatic irrigator (see Figure 4) which flushes the wound every two hours. This device eliminates considerable work for nurses and orderlies of irrigating wounds by syringe or gravity. It is simply a small glass tube bent in the form of a U to act as a siphon, within a large tube which serves as a storage tank. This irrigator is connected with the large storage tank above and the tube going to the wound below. By means of a pinchcock the solution is allowed to drop into the irrigator from the tank above so that the irrigator is filled every two hours. When it is full the siphon in the irrigator empties it. These are made in different sizes, from one-half to two ounces.

The effectiveness of the treatment is confirmed by means of smears of the pus taken from the worst part of the wound. These smears are stained with methylene blue and the bacteria counted under a microscope. The progressive decrease in the number of bacteria per microscopic field is proof of the progress of sterilization of the wound. If the infection is a staphylococcus, the wound can be closed if the count shows 1 microbe to 10 microscopic fields on three successive counts. If the organism is a streptococcus or bacillus, the wound

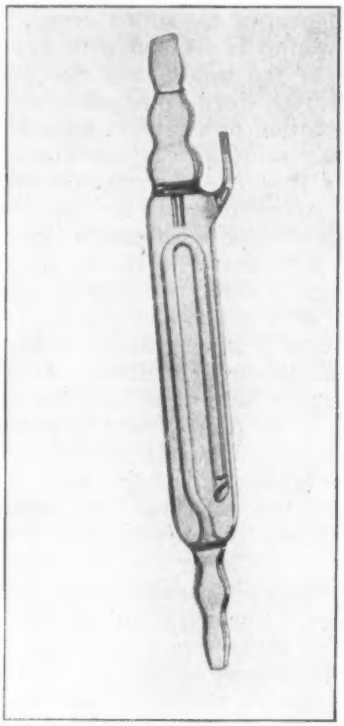

FIG. 5.—Tuffier small size irrigator.

should not be closed until no microbes are found in the smear. These wounds are not bacteriologically sterile, as in many cases they will show bacteria culturally, but for practical purposes of closure they are sterile. It is unnecessary to wait until a wound is culturally sterile before attempting closure.

The methods of closure of wounds are simple: First, non-operative, by drawing the wound edges together with adhesive bands. This method is slow and frequently results in considerable scar on healing. The second method, operative, consists in cutting around the border of the wound with a scalpel. The line of incision should be just in the border of the healthy skin. Then with scissors excising the thin margin of skin and new epithelium between the line of incision and granulations of the wound; after that, mobilizing the skin about the wound in the layer of subcutaneous fascia and approximating the skin edges with suture. The skin edges should be approximated over the granulations. Care should be taken in the operation to injure the granulations as little as

possible. It has been found that removing granulations is frequently attended with poor results. This method gives a flexible linear scar without contraction.

The results of the Carrel-Dakin method of treatment may be conveniently grouped under two headings:

1. A saving of men.
2. A saving of money.

It has been found that with this method of treatment many limbs can be saved which formerly were amputated, thus eliminating many severe operations when a patient was in shock following a wound. Septicemias and abscesses following wounds have been greatly reduced. At Carrel's hospital, from December 1, 1915, to October 1, 1916, there were only three abscesses following wounds and three amputations necessitated by septicemia. Better results than these can be obtained, as shown by Uffolz,[13] where the Carrel-Dakin method is used at the front and can be instituted within six hours after the patient is wounded.

Fig. 6.—*Coup-de-hache* amputation following compound fracture of shaft of femur, secondary hemorrhage, ligation of femoral artery resulting in gangrene.

From an economic viewpoint the closure of wounds of soft parts and compound fractures, after infection has been subdued, and the resulting healing by primary union, is an enormous saving over older methods of treatment. Carrel, Depage[14] and others have reported closing wounds of soft parts in 5 to 20 days after instituting the treatment, which would have required many weeks to cicatrize. Compound fractures were, in many cases, closed in from 15 to 25 days, which would have required 6 to 8 months to heal by older methods of treatment —a saving of from 50 to 70% (Carrel) in the cost of treatment. A greater benefit still from this treatment is in the improved function of limbs as compared with other methods. This results in a greater probability of the patient's being able to earn a living after convalescence and, at the same time, a decrease in pensions.

A wound that requires six months to heal, in most cases, forms more scar tissue and is more liable to contracture than a similar wound which heals in four weeks. Also, a compound fracture which requires 6 to 8 months to unite and heal gives promise of less favorable ultimate results than one healing in six weeks.

Reviewing briefly the Carrel-Dakin method of treating wounds, we have, first, a solution that is simple and easy to make; which does not require a well-equipped laboratory or a special knowledge of chemistry; second, the ingredients of which it is made are always available. In regard to the method: in the hospitals and dressing stations where it has been used, it has proven that the inevitable sepsis following war wounds can be controlled; that many of the maiming operations which were done in the early months of the war to avoid sepsis were unnecessary; and that the mortality from sepsis can be greatly decreased as compared with older methods.

While the men who have studied this method of treating wounds at Compiègne have written little of the results of its use in civil practice, one would expect that the method would give as good results in killing domestic bugs as military bugs.

Tuffier was using Dakin's solution on all of his empyemas on his service last winter at Hospital Beaujon. His method was to fill the infected chest with Dakin's solution each morning and allow it to remain about one-half hour, then, turning the patient, allow the solution to run out. I have treated three empyemas recently by this method, with very gratifying results. There was a rapid decrease in the amount of discharge, an improvement in septic symptoms and an expansion of the lung at an earlier date than is usually seen. The latter symptom was very noticeable in Tuffier's cases, as he had x-rays taken at different periods showing the expansion of the lung.

In appendix abscess, my experience has proven that the Carrel-Dakin treatment should be used only on selected cases. In cases where the appendix has been removed and the abscess drained without much injury to the intestinal wall, the cigarette wicks can safely be removed about the fifth day and Carrel tubes inserted. The injection of Dakin's solution causes a sudden disappearance of fecal odor and rapid heal-

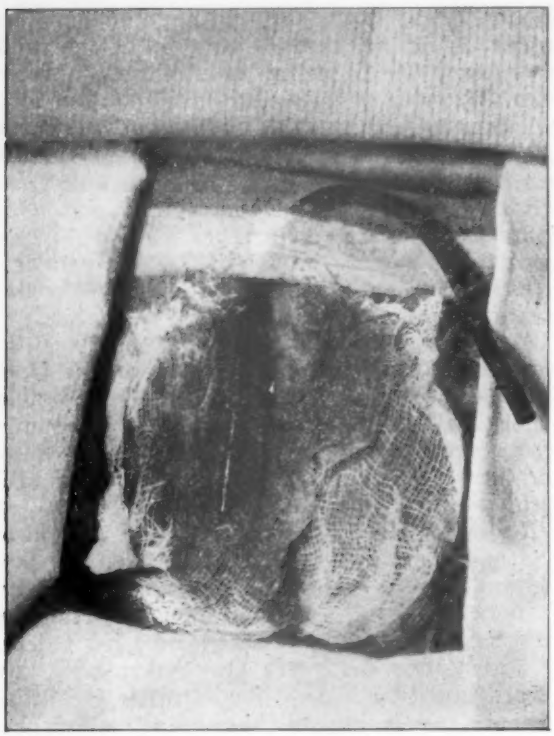

FIG. 7.—Drained appendectomy wound, unhealed after 12 weeks' treatment, healed in 2½ weeks under Carrel-Dakin treatment.

ing of the wound. But in cases where the appendix has been removed with difficulty, with separation of many adhesions and injury to visceral peritoneum, the injection of Dakin's solution by dissolving sloughing tissue may result in a fecal fistula or hemorrhage, as occurred in two of my cases.

The use of Dakin's solution in the treatment of puerperal sepsis has been described by Sherman.[15]

In sepsis of the extremities and localized sepsis, such as boils and carbuncles, it has been most effective, provided the infected area is laid open, allowing the solution to have free access to all parts.

In conclusion, it can be truly said that no other method of treating wounds in the present war has withstood the test of time and application under every existing condition and by many different surgeons that the Carrel-Dakin method has. Owing to the rather painstaking technic, it is not the ideal treatment; but where it is carried out according to the rules laid down by Carrel, the results have been uniformly better than by other methods thus far used. Its adoption in civil practice, in preference to the older methods of treating sepsis, will, in the writer's opinion, be attended with equally gratifying results.

REFERENCES.

[1] Vincent, H.: Presse Médicale, Paris, March 29, 1917, xxv, No. 18, p. 180.
[2] Antoine, Edouard: Jour. de Practiciens, Sept. 23, 1916, p. 636.
[3] Chevrou: Progrès Médicale, Paris, Feb. 24, 1917.
[4] Anderson and Chambers: Lancet, London, March 3, 1917, p. 331.
[5] Taylor, Kenneth: Mechanism of Saline Dressings, Brit. Med. Jour., Sept. 2, 1916.
[6] Desfosses, P.: Presse Médicale, Nov. 23, 1916, p. 537.
[7] Daufresne, Maurice: Presse Médicale, No. 59, Oct. 23, 1916.
[8] Dakin, Lee, Sweet, Hendrix and Le Conte: Jour. A. M. A., July 7, 1917, p. 27.
[9] Since writing this article a communication from one of the authors (Sweet) has appeared in the Jour. A. M. A., Sept. 29, 1917, on the use of Dichloramine-T in the treatment of war wounds. This article is based upon the first test of the new preparation in war surgery and, from an economic point of view, proves its efficiency.
[10] Carrel, A., and Dehelly, G.: Le Traitément des Plaies Infectées, Masson et Cie., Editeurs.
[11] Delbet, Pierre: Soc. de Chir., Aug. 29, 1916.
[12] Tuffier: La Presse Médicale, Dec. 28, 1916.
[13] Uffolz: Archiv. de Méd. et de Pharm. Militaire, January, 1916.
[14] Depage: Bull. et Med. de la Soc. de Chir., Paris, Aug. 9, 1916, p. 1987.
[15] Sherman: Jour. A. M. A., July 21, 1917, p. 185.

SURGERY OF THE BILIARY TRACT.

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THE primary object of a hospital is the care of the sick. Our large university hospitals have another equally important mission,—the instruction of the medical profession. The vast amount of clinical material should be utilized for the advancement of medical knowledge, both in clinical teaching and in contributions to literature.

My admiration for the Mayos is greatly augmented by the Mayo Clinics and their prolific contributions to medical literature. They have greatly enriched the archives of surgery through the vastness of their clinical experience. We cannot all present our conclusions with the authority of a Mayo; we who must draw our deductions in the surgery of the thyroid, stomach, gall-bladder, etc., from a total with a decimal point at least once removed.

This should not deter any surgeon from the responsibility of contributing his quota to the general fund of medical knowledge, for if it does "take nine tailors to make a man" even so, "the ninth of a man then you are."

For years, the medical journals have contained many articles on the surgery of the biliary tract. Nearly all such papers resolve themselves into a discussion of cholecystotomy *versus* cholecystectomy. The tendency to gravitate in this direction reminds one of the propensity of the clerical mind in early New England to discuss the efficacy of infant baptism. The last word has not been said, but the experienced surgeon finds abundant opportunity for the employment of both operations.

Several years ago, the tendency was strongly in favor of cholecystctomy as the safer and more rational procedure. Even the influence of the Mayo Clinic was thrown in this direction. More recently, the pendulum has swung toward cholecystectomy, in view of the larger percentage of radical cures.

It would seem that before discussing the relative merits of two operations, one conserving and the other extirpating the gall-bladder, we might with profit dwell for a moment upon the physiological importance of the gall-bladder.

Physiology teaches us that the gall-bladder serves as a reservoir for the storage of bile while it is not needed, and that during digestion the contractions of the gall-bladder express the bile into the duodenum. This theory is refuted on the ground that, were this the function of the gall-bladder, its capacity would be far greater. With 40 ounces as an average daily output of bile, a gall-bladder with a capacity of only one or two ounces must be a negligible factor as a storage container. Moreover, the muscular coats of the gall-bladder are not constructed so that contractions of these muscles are capable of emptying this viscus. That the gall-bladder may act as a tension bulb, thus protecting the parenchyma of the liver from the evil influences of back pressure, has more to commend it. Perhaps the distention of the common duct after a cholecystectomy, as described by Judd, and in one case observed by the writer, may be Nature's method of compensating for the loss of the gall-bladder.

But whatever arguments pertain in regard to the physiological importance of a healthy gall-bladder, come to naught in reference to the treatment of the diseased gall-bladder. When diseased, the normal muscle tone of the organ is altered; its walls are thickened and inelastic. Cicatricial tissue, the result of long-continued irritation and inflammation, immobilizes the organ and diminishes its capacity. Gallstones encroach upon its lumen, and inflammatory processes occasion extensive external adhesions.

We, therefore, have no argument with the physiologist, as to the desirability of conserving a functionating gall-bladder. We are concerned rather with a pathological problem, whether a diseased organ can safely be left in the abdominal cavity. Upon this premise, we shall have something to say. Logically, the degree of pathology which is encountered must regulate our conduct in determining whether to extirpate the gall-bladder, or to drain.

It is now generally understood that the following conditions demand the removal of the gall-bladder:

Obliteration of the cystic duct resulting in hydrops;

Suppuration within the gall-bladder, known as empyema;

Gangrene;

Carcinoma when limited to the gall-bladder wall;

Strawberry gall-bladder, where yellow spots are seen upon the mucous surface, the result of chronic ulceration.

Concerning these conditions, there is unanimity of opinion that cholecystectomy should be done.

To these, I would add that my experience urges a greater field of application for removal of the gall-bladder. When the walls are thickened, so that their contractile power is lost and regurgitant bile must stagnate in a functionally impaired organ, we have a condition favorable for the perpetuation of a chronic cholecystitis, with or without the formation of stones. In these cases, unfortunately, the gall-bladder may fail to contract and a long-continued and troublesome sinus persist.

A gall-bladder, the seat of a chronic inflammation, should not be left to jeopardize a patient's life and maintain a state of chronic invalidism from adhesion formation and subsequent contractions about the common duct, pylorus and duodenum.

How thoroughly I believe in the superiority of radical surgery of the gall-bladder, will be seen from the large proportion of cholecystectomies in my early experience. In the years 1914 and 1915, I fell from grace and performed more cholecystotomies, because of the admonitions of the surgical press.

I became distrustful of the superiority of cholecystotomy and soon found myself again within the fold, and fully convinced that radical cure was most frequently attained by extirpation of the gall-bladder. My personal experience has tended to a wide application of cholecystectomy, in view of the relatively small death rate.

But why talk about the relative mortality of these surgical procedures? A surgeon who drains the gall-bladder even under local anaesthesia in a patient *in extremis*, for gangrene and empyema, will have a higher mortality in cholecystotomy, for the large majority of these cases will commend themselves to him as suitable cases for drainage.

Should he elect to perform cholecystectomy in these desperate cases, then his mortality in cholecystectomy would exceed cholecystotomy. The patient's life is best conserved by two operations: first, drainage; and later, radical removal, if indicated.

If there be definite indications for cholecystectomy, there should be equally definite contraindications.

Cholecystotomy is indicated:

In patients desperately ill, where a prolonged operation cannot be tolerated;

In obese patients, where the gall-bladder is contracted, densely surrounded by adhesions and deeply imbedded beneath, and remote from the free edge of the liver. In other words, where it cannot be removed with relative safety, it should be incised, stones removed, and drained; for it is better to have a living patient than to perform an ideal operation.

In all cases of pancreatitis with jaundice, the gall-bladder should be conserved. It affords an excellent drainage tract for the bile passages, or may be utilized in shunting bile into the intestinal tract, or in the performance of cholecystenterostomy.

There remains a large number of cases of cholecystitis, where simple drainage of the gall-bladder may be curative; or cholelithiasis, where removal of gallstones and drainage may result in radical cure, provided the gall-bladder is not markedly pathological.

It is in these cases that the surgeon must decide whether to drain or excise. This decision may at times "make cowards of us all," for it is easier to drain than to excise.

The operation of cholecystectomy in certain cases may be technically difficult, but a complete restoration to health is the object sought. This, however, should be obtained without too great hazard. I am convinced that the relative mortality in these two operations is not essentially different in the hands of a skilful surgeon.

I am equally certain that in the hands of the novice the operation of cholecystectomy is attended by a far greater mortality; for the surgeon is working in a danger zone, unfamiliar with the anatomy. The pricking of the common duct, the throwing of a ligature about it, an injury to the portal vein, an insecure ligation of the cystic duct or the cystic artery, may result in disaster and death. These accidents are quite preventable and unlikely to occur in the hands of the expert.

The crux of the problem lies in the selection of the case where cholecystectomy can be safely performed, and the surgeon of limited experience may attempt to remove the gall-bladder when a man of wider experience could tell at a glance that a cholecystotomy was all that should be undertaken.

Probably every surgeon of wide experience has met with calamity in the performance of cholecystectomy, the most common mishap being the slipping or blowing off of a ligature about the cystic duct.

Among my early cases, I performed cholecystectomy upon an aged woman. As far as I know, the cystic duct was securely ligated. She was convalescing in a satisfactory manner and had begun to sit up, when very suddenly at night, she was taken with severe abdominal pain, acute distention of the abdomen and vomiting.

I was hurriedly summoned; a condition of acute peritonitis was suspected and her abdomen was immediately opened through the old incision. A large quantity of flocculent bile poured out through this wound. Without further manipulation, some drains were arranged through the abdominal wound and my patient made an uninterrupted recovery. Had there been any delay in instituting drainage, she would have succumbed to general peritonitis.

The relative merits of cholecystotomy *vs.* cholecystectomy must be decided upon the immediate mortality and the morbidity statistics following these procedures.

In a total containing twice as many cholecystectomies as cholecystotomies, the writer's mortality in cholecystectomy has been 3.6%, and in cholecystotomy, 20.4%. This points conclusively to the fact that the patients most critically ill have been treated by simple drainage. Many cases were *in extremis* and died shortly after operation.

In the morbidity following the two operations, my experience points strongly to the advantages of cholecystectomy. I reckon among my unpleasant experiences one case of re-formation of gallstones; two cases of stones overlooked; one case of persistent fistula, where the patient would not consent to a second operation; several cases of fistula requiring cholecystectomy, and numerous cases of persistent soreness in gall-bladder region, suggesting chronic cholecystitis and requiring the removal of the gall-bladder.

My experience with cholecystotomy seems to confirm the observations recorded by Deaver[1], where he says that about 4.07% of his cases of biliary affections were secondary cases, where one or more previous operations had been made upon the bile passages. The most frequent recurrences after cholecystotomy were stones in the gall-bladder and common duct, with adhesions and stricture.

In a study of a series of cases by C. H. Mayo[2], he found that 53% of cholecystotomy cases were cured and 71% of cholecystectomy. Mayo claims that cholecystectomy is indicated in 80% of gallstone diseases.

Lane says that cholecystectomy is the operation of choice in cholelithiasis. (*Jour. of A. M. A.*, Nov. 20, 1915, 9, 1794.)

Swope reports that 96.8% of cures follow cholecystectomy and 74.8% follow cholecystotomy. (*Am. Jour. Obstetrics*, Nov., 1915.)

My cholecystectomy cases are conspicuous for lack of complications; almost universal and complete relief has followed this operation. One case of flooding of the peritoneal cavity with bile, previously mentioned, and one case of cancer of the pancreas, eight years after cholecystectomy, are the only instances where I have been compelled to re-enter the abdomen.

The argument against cholecystectomy, on the ground that the gall-bladder, if left, may be a convenient guide to the common duct in case of secondary operation, fails to interest me, because the removal of the gall-bladder removes the atrium of infection, rendering subsequent operation exceedingly improbable.

Should it be necessary to explore the common duct, it would not seem that a previous cholecystectomy should present insurmountable obstacles.

Pancreatitis is frequently observed as a sequel of gall-bladder disease. Deaver and Pfeiffer[3] have pointed to the manner in which this infection is carried from the inflamed gall-

bladder to the peri-pancreatic tissue by way of lymphatic circulation, resulting in pancreatitis.

In describing the method of infection, Deaver calls attention to the communication between the pancreas and the lymphatics of the stomach, duodenum, spleen, liver, gall-bladder, ducts, colon and left suprarenal.

The lymphatics arising from these sources are closely related to those of the surface of the head of the pancreas, and inosculate directly with the efferent lymph channels from that organ. He claims that the inflammation of the head of the pancreas, so frequently observed in cholecystitis, corresponds to the lymphatic distribution and not at all to the duct distribution, as would be the case if resulting from ascending duct infection.

This explanation of the method of transmission of infection makes plain the reason for the enlargement and induration so frequently observed in the head of the pancreas. On the theory of an ascending duct infection, it would be difficult to explain why the head of the pancreas should show a greater degree of involvement than the body of this organ.

When the head of the pancreas is involved, Deaver logically recommends cholecystectomy, for in that way he removes the source of the infection. In case the pancreas is chiefly affected, he advises against the removal of the gall-bladder; but drains and preserves it for a cholecystoduodenostomy, in case the common duct should become permanently obstructed.

I have no new technic in the operation of cholecystectomy. I believe in an incision sufficiently long to expose readily the under surface of the liver in the region of the gall-bladder. I recognize that the typical American operation of cholecystectomy is performed by dissecting the gall-bladder from below upward, first severing the cystic duct and ligating the cystic artery. The gall-bladder can then be readily stripped from its sulcus in the liver without bleeding.

Personally, I prefer to perform this operation in reverse order, first cutting around the gall-bladder at a point about one-half inch away from the liver. By dry dissection, the fundus of the gall-bladder is separated from the liver, from above downward, until the cystic duct is reached.

When bleeding from the cystic artery is encountered, a hemostatic forceps is applied. A cuff of peritoneum is fashioned about the cystic duct, which is clamped with artery forceps both above and below the point where it is severed. I then grasp the distal end of the cystic duct and pass a probe downward into the duodenum. I do not probe upward into the hepatic duct unless indicated.

If the ducts are free, two chromic ligatures are thrown about the cystic duct, the lower tied rather loosely and the upper with considerable force. A drop of carbolic acid is then applied to the stump; the stump is buried beneath the peritoneal flap which was previously fashioned.

The denuded area occasioned by removal of the gall-bladder is then closed by bringing together, with catgut sutures, the peritoneal flaps which were fashioned as the first step in cholecystectomy.

I am aware that this technic is not the accepted procedure of the day; nevertheless, I am convinced that it is a safer method of removing the gall-bladder than the initial severing of the duct.

I have never experienced any of the calamities which are described as a complication of cholecystectomy; have never injured the common duct; nor is there any likelihood of doing this when the operation is made from above downward. A recent article by Major G. Seelig of St. Louis, on cholecystectomy calls attention to the desirability of this method.

I am appending statistics of the surgery of the biliary tract at the Massachusetts Homeopathic Hospital during a period of 11 years. It should be remembered that this is a large general hospital in the center of Boston, and the great proportion of its patients come from this city and its suburbs. Many patients in desperate condition, suffering from acute gall-bladder diseases, naturally come into our clinics.

A large percentage of our cases should be classified as acute, and includes acute cholecystitis, hydrops, gangrene associated with pancreatic disturbance and with stones in the common duct. These statistics include several cases of patients *in extremis*, where the propriety of any operation was questionable.

In the years 1912, 1913 and 1914, 139 cholecystotomies and 57 cholecystectomies were performed. In the three years following, the figures are reversed and we had 76 cholecystotomies and 95 cholecystectomies. This reversal is probably due to the trend of literature in favor of cholecystectomy, corroborated by the personal experience of our surgeons.

In 1914, the hospital established a follow-up system. The replies from patients received since that date show nine unsatisfactory results from cholecystotomy and two from cholecystectomy.

From our statistics, it will appear that the mortality in cholecystectomy is lower than in cholecystotomy by 2.3%. We are not justified, however, in concluding that one operation is safer than the other, as cholecystotomy was employed in the more severe cases.

The end-results, both in our hospital statistics and in my own private work, corroborate the statement previously made in this paper, that the operation of cholecystectomy has given more satisfactory permanent cures.

Cholecystotomy		
Total	333	
Deaths	38	
Total death rate		11.4%
Cancer deaths	5	
Death rate (excl. cancer)		10%
Cholecystectomy		
Total	263	
Deaths	24	
Total death rate		9.1%
Cancer deaths	4	
Death rate (excl. cancer)		7.7%
Choledochotomy		
Total	32	
Deaths	6	
Total death rate		18.7%
Cancer death	1	
Death rate (excl. cancer)		16%
Cholecyst-enterostomy		
Total	9	
Deaths (all from cancer)	3	
Death rate		33 1-3%
Total cases gall-bladder surgery	637	
Total deaths	71	
Total death rate		11.1%

REFERENCES.

[1] Surg., Gyn. and Obstet., October, 1917.
[2] Collected papers of the Mayo Clinic, 1915, 7-262.
[3] Am. Jour. Med. Sci., April, 1912.

LIPOIDS IN 131 DIABETIC BLOODS.

BY HORACE GRAY, BOSTON.

[From the Department of Biological Chemistry, Harvard Medical School.]

(Continued from page 94.)

WEIGHT.

Low or High Weight.

In order to study the relation of weight to the lipoids it should be noted that:

1. The patient's weight taken for consideration has been not the Maximum Weight (so-called "best weight"), nor the Onset Weight (which incidentally *often* coincides with the maximal weight, and very likely should always coincide if patients only noted carefully enough their earliest symptoms), but the Weight Today (*i.e.*, when the blood specimen was drawn).

2. This weight has not been considered in its *absolute* level, but only in its level *relative to the normal,** *i.e.*, whether under or over weight.

* Means, J. H.: The Basal Metabolism in Obesity, Arch. Int. Med., May, 1916, xvii, 706, 704-710.

This relation has been calculated by the formula:

$$\frac{\text{Patient's weight minus normal weight}}{\text{Normal weight}}$$

% over (+) or under (—) weight

3. Now the *standard normal* table should show the average weight not merely for each sex or age or height, but rather for each sex and year of age subdivided according to height. The most recent of such tables that I have been able to find have been reprinted recently in this JOURNAL (December 27, 1917) because they are so useful and because published in reports which, though in print, are apt to be found only in special and often inaccessible libraries. Both were published in feet and inches and pounds, hence the use of these in this paper rather than

TABLE XIX.

RELATION OF WEIGHT WHEN BLOOD WAS TAKEN.

BLOOD LIPOIDS IN PER CENT.

PER CENT. OVERWEIGHT + UNDERWEIGHT —	No. of Bloods	TOTAL-FAT		TOTAL FATTY ACIDS		LECITHIN		CHOLESTEROL		GLYCERIDES		T. F. A. C.		L. C.		TOTAL LIPOIDS	
		W. B.	Pl.	W. B.	Pl.	Cps.	W. B.	Pl.	Cps.	Pl.	Cps.	W. B.	Pl.	Cps.	W. B.	Pl.	Cps.	Pl.
+21 and over (max. +63)	4	0.81	0.88	0.59	0.67	0.34	0.31	0.22	0.43	0.22	0.20	0.08	0.36	0.08	0.63	2.88	0.88	0.97	2.17	0.91
+11 to 20	5	0.49	0.90	0.58	0.67	0.48	0.30	0.22	0.37	0.21	0.23	0.16	0.45	0.22	2.05	3.10	1.27	0.94	2.11	0.99
+1 to 10	6	0.87	1.01	0.63	0.73	0.49	0.32	0.26	0.42	0.24	0.28	0.19	0.45	0.21	1.96	2.89	1.15	0.95	2.30	1.01
±0, *i.e.* normal	2	0.62	0.70	0.42	0.50	0.28	0.28	0.21	0.42	0.20	0.21	0.20	0.29	0.01	1.49	2.44	0.79	1.03	2.13	0.79
—1 to —10	15	0.74	0.88	0.55	0.63	0.44	0.30	0.24	0.37	0.23	0.25	0.20	0.36	0.21	1.86	2.51	1.30	1.03	2.00	0.97
—11 to —20	19	0.97	1.11	0.73	0.79	0.47	0.34	0.28	0.43	0.27	0.31	0.21	0.50	0.22	1.92	2.90	1.10	1.01	2.08	1.21
—21 to —30	29	1.15	1.44	0.86	0.99	0.49	0.39	0.39	0.42	0.38	0.46	0.25	0.55	0.23	1.89	2.16	1.22	0.88	1.81	1.48
—31 to —40	19	1.62	2.13	1.15	1.50	0.76	0.43	0.42	0.43	0.46	0.58	0.27	1.12	0.51	2.73	3.62	1.83	1.00	0.74	1.94	2.40
—41 and under (min. —59)	10	1.58	1.88	1.53	1.38	0.71	0.30	0.38	0.42	0.41	0.52	0.21	0.95	0.49	2.38	3.15	1.65	1.05	0.78	2.13	2.65
+11 and over	9	0.80	0.89	0.59	0.67	0.44	0.31	0.22	0.40	0.21	0.23	0.17	0.41	0.17	1.89	2.93	1.12	1.39	0.95	2.13	0.96
+10 to —10, *i.e.* broad normal	23	0.77	0.90	0.56	0.64	0.44	0.31	0.24	0.39	0.23	0.26	0.19	0.39	0.20	1.86	2.60	1.20	1.37	1.00	2.10	0.99
—11 and under	77	1.26	1.59	0.92	1.12	0.57	0.39	0.37	0.42	0.37	0.41	0.24	0.73	0.32	2.22	3.00	1.37	1.13	0.86	1.96	1.72

the preferable metric units. It will be noticed that the insurance table, "age 15 and over," is unfortunately *with* clothes and shoes. The formula recommended in the recent article on normal weight could not be used for the present article, owing to ignorance of the chest circumference of each patient.

After the per cent.± over or under weight had been calculated, the bloods were grouped by these per cents. and each group was averaged, with the results given in Table XIX.

In Table XIX the total-lipoids for those *either* under or over weight appear greater than for those whose weight is what it should be. But this peculiar result may well be due to the small size of the latter group, *i.e.*, only two specimens. If we make a further average in total-lipoids of those within 10%±, which is if anything an unnecessarily restricted normal, we get 0.99 g. per 100 cc., while all those more than 10% overweight average 0.96, and those more than 10% underweight average 1.72. Furthermore, *underweight* is accompanied by marked rise, not only of total-lipoids, but of all lipoids individually: total-fatty-acid, lecithin and cholesterol. *Overweights* have lipoid averages of little interest, *i.e.*, slightly above those for normal weights in total-fatty-acids and in glycerides in plasma, but slightly *below* normal in glycerides in corpuscles, in lecithin, and in cholesterol. This increase is apparently proportional in total-fat and cholesterol, less noticeably so in lecithin.

LOSS OF WEIGHT.

Is great loss of weight accompanied by low lipoids? To determine this loss, the Maximal Weight and the Weight Today (i.e., the time of the last specimen obtained) have each been expressed as the %± normal, already explained; and the number of points difference between these two percentages has been taken as the criterion. That the *greatest loss* of weight was here accompanied by the *lower total-fat* is apparent only if the list is averaged in upper and lower halves separately, when we see that the lower half, *i.e.*, the 24 greatest losers, had the lower total-fat—0.84. Cholesterol was precisely the same in both halves.

TABLE XX.

LOSS OF WEIGHT.

LOSS OF WEIGHT, EXPRESSED AS DIFFERENCE BETWEEN MAX. WT. AND WEIGHT WHEN BLOOD WAS TAKEN; WEIGHT IN EACH CASE HAVING BEEN EXPRESSED AS PER CENT. ABOVE OR BELOW NORMAL STANDARD.	NO. OF BLOODS	BLOOD LIPOIDS IN PER CENT.	
		TOTAL-FAT	CHOLESTEROL
		W. B.	W. B.
0—20	20	0.90	0.28
21—30	13	0.93	0.26
31—40	13	0.95	0.32
41—50	10	0.80	0.25
51—60	7	0.99	0.24
61 and over	7	0.73	0.36
0—40	46	0.92	0.28
41 and over	24	0.84	0.28

DIETARY FAT.

When ingested fat was more than 40 grams, total-fat was extraordinarily steady at about 1.25%, as compared with about 0.8% when diet fat was 1-40 g. The curious point is that when no fat at all was eaten the total fat averaged high again—also 1.25%.

L. and C. both show the same points as T.F.

TABLE XXI.

INFLUENCE OF DIETARY FAT IN PRECEDING 24 HOURS.

DIETARY FAT IN G.	NO. OF BLOODS	TOTAL-FAT		TOTAL FATTY ACIDS		LECITHIN		BLOOD LIPOIDS IN PER CENT. CHOLESTEROL		GLYCERIDES		T. F. A. L.		L. C.		TOTAL LIPOIDS
		W. B.	Pl.	W. B.	Pl.	W. B.	Pl.	W. B.	Pl.	Pl.	Cps.	W. B.	Pl.	W. B.	Pl.	Pl.
0	24	1.25	1.48	0.92	1.09	0.34	0.32	0.33	0.39	0.74	0.48	2.51	3.22	1.20	0.94	1.63
1— 20	9	0.87	0.93	0.65	0.69	0.29	0.24	0.22	0.24	0.42	0.29	2.03	2.95	1.40	0.98	1.60
21— 40	4	0.70	1.48	0.50	1.08	0.30	0.28	0.20	0.41	0.75	0.19	1.66	3.50	1.50	0.79	1.60
41— 60	6	1.27	1.89	0.89	1.24	0.39	0.38	0.38	0.48	0.83	0.16	2.28	3.11	1.04	0.89	1.88
61— 80	11	1.23	1.65	0.84	1.16	0.39	0.38	0.39	0.49	0.73	0.32	2.11	3.09	1.05	0.80	1.77
81—150	15	1.23	1.36	0.88	0.95	0.39	0.33	0.35	0.41	0.58	0.21	1.89	2.22	1.16	0.87	1.49
							0.47		0.24				1.04		2.10	

DIETARY FAT IN G.	NO. OF BLOODS	TOTAL-FAT		TOTAL FATTY ACIDS		LECITHIN		BLOOD LIPOIDS IN PER CENT. CHOLESTEROL		GLYCERIDES		T. F. A. L.		L. C.		TOTAL LIPOIDS
		W. B.	Pl.	W. B.	Pl.	W. B.	Pl.	W. B.	Pl.	Pl.	Cps.	W. B.	Pl.	W. B.	Pl.	Pl.
0	24	1.25	1.48	0.92	1.09	0.34	0.32	0.33	0.39	0.74	0.48	2.51	3.22	1.20	0.94	1.63
1— 20	9	0.87	0.93	0.65	0.69	0.29	0.24	0.22	0.24	0.42	0.29	2.03	2.95	1.40	0.98	1.60
21— 40	4	0.70	1.48	0.50	1.08	0.30	0.28	0.20	0.41	0.75	0.19	1.66	3.50	1.50	0.79	1.60
41— 60	6	1.27	1.89	0.89	1.24	0.39	0.38	0.38	0.48	0.83	0.16	2.28	3.11	1.04	0.89	1.88
61— 80	11	1.23	1.65	0.84	1.16	0.39	0.38	0.39	0.49	0.73	0.32	2.11	3.09	1.05	0.80	1.77
81—150	15	1.23	1.36	0.88	0.95	0.39	0.33	0.35	0.41	0.58	0.21	1.89	2.22	1.16	0.87	1.49
							0.47		0.24				1.04		2.10	

TABLE XXII.

INFLUENCE OF FASTING.

NO. OF DAYS FASTING	NO. OF BLOODS	TOTAL-FAT		TOTAL FATTY ACIDS		LECITHIN		BLOOD LIPOIDS IN PER CENT. CHOLESTEROL		GLYCERIDES		T. F. A. L.		L. C.		TOTAL LIPOIDS
		W. B.	Pl.	W. B.	Pl.	W. B.	Pl.	W. B.	Pl.	Pl.	Cps.	W. B.	Pl.	W. B.	Pl.	Pl.
1	4	1.14	1.36	0.71	0.94	0.43	0.40	0.43	0.42	0.57	0.03	1.58	2.58	1.05	0.79	1.69
2	2	2.64	2.82	2.02	2.15	0.39	0.43	0.52	0.67	1.67	1.66	4.38	4.08	1.14	1.00	3.03
3	1	1.08	1.22	0.83	0.95	0.35	0.26	0.25	0.27	0.69	0.36	2.37	3.65	1.40	0.96	1.33
					0.67		0.47		0.21				0.75		2.24	

Total-lipoids also, except that its low level corresponds not to 1-40 grams dietary fat, but to the smaller group, 1-20 grams.

FASTING.

Unfortunately no two of these seven specimens came from the same patient on successive days. From Table XXII, the lipoids appear increased after the second day of fasting, while after the third they become lower than after the first day. More data are imperative to furnish conclusions.

ACIDOSIS.

Acidosis goes with increased lipoids, but the striking feature of Table XXIII is that compared with diabetics without acidosis, the lipoid increase is twice as great with moderate acidosis as with severe. The greatest percentile increase is in glycerides in the corpuscles, 145%; then glycerides in plasma; after that total-fatty-acid in corpuscles, then in plasma. Cholesterol is pushed up much less, and lecithin still less.

CARBOHYDRATE BALANCE.

When the carbohydrate balance is 0 or negative, one would expect to find the lipoids increased. This is in fact true, as seen in Table XXIV.

It is most clearly shown by the column for *total-fat* in W.B., where:

1. The values corresponding to a balance of 0 or less are higher than the values corresponding to any positive balance.

2. When the balance is negative, a striking feature is that the lipoid value is lower, not higher, than when the balance is 0. Furthermore, it is enough lower to be closer to the value for a plus-balance than to the value for 0-balance.

3. As the plus-balance increases, the corresponding lipoid values decrease, and progressively so, except for the 1.04 corresponding to 1 to 20 g. balance.

T.F. in plasma is irregular in many respects.

T.F.A. in W.B. parallels *total-fat* in W.B., here as usual; in plasma and in corpuscles it is inconclusive.

Lecithin. 1 and 2. The lipoid value corresponding to 0-balance is higher than for +-balance. The value for a minus-balance is not merely less than 0-balance, but is the same as +-balance.

3. Until the balance has increased to +81 or more, there is no lipoid decrease.

Cholesterol behaves like lecithin.

Glycerides in W.B. act like T.F. in W.B., but instead of only one exception, under point 3, show two irregularities.

Total-lipoids may have the same said of them.

The other columns are not significant.

TABLE XXIII.

INFLUENCE OF ACIDOSIS.

BLOOD LIPOIDS IN PER CENT.

ACIDOSIS	No. OF BLOODS	TOTAL-FAT		TOTAL FATTY ACIDS			LECITHIN			CHOLESTEROL			GLYCERIDES			T. F. A. L.			L. C.		TOTAL LIPOIDS
		W. B.	Pl.	W. B.	Pl.	Cps.	W. B.	Pl.	Cps.	W. B.	Pl.	Cps.	Pl.	Cps.	W. B.	Pl.	Cps.	W. B.	Pl.	Cps.	Pl.
0	81	1.02	1.24	0.72	0.87	0.48	0.35	0.31	0.41	0.31	0.37	0.22	0.52	0.22	1.95	2.74	1.14	1.22	0.91	0.96	1.36
Moderate	20	1.45	1.75	1.07	1.30	0.78	0.37	0.35	0.38	0.39	0.45	0.25	0.92	0.54	2.67	3.41	2.18	1.11	0.86	1.67	1.95
Severe	16	1.17	1.47	0.86	1.07	0.48	0.37	0.34	0.41	0.35	0.37	0.20	0.68	0.24	2.18	2.67	1.23	1.28	0.95	2.28	1.59
% above (+) / below (−) av. of 81 diabetic bloods without acidosis, shown by:	Moderate acidosis	42	41	49	49	63	6	13	7	26	22	14	83	145	37	24	91	9	6	74	43
	Severe acidosis	15	19	19	23	0	6	10	0	13	0	9	31	9	12	3	8	5	4	138	17

TABLE XXIV.

INFLUENCE OF CARBOHYDRATE BALANCE OF PRECEDING 24 HOURS.

CH Balance in G.	No. of Bloods	Total-Fat		Total Fatty Acids		Lecithin		Blood Lipoids in Per Cent. Cholesterol		Glycerides		T. F. A. L.		L. C.		Total Lipoids	
		W. B.	Pl.	W. B.	Pl.	W. B.	Pl.	W. B.	Pl.	Cps.	Pl.	W. B.	Pl.	Cps.	W. B.	Pl.	Cps.	Pl.
—83 to —1	6	1.22	1.52	0.93	1.17	0.35	0.33	0.29	0.35	0.18	0.85	2.50	2.63	1.75	1.29	0.99	2.31	1.66
0	8	1.57	1.77	1.15	1.29	0.41	0.40	0.42	0.48	0.25	0.92	2.59	3.13	2.48	1.13	0.89	1.81	2.09
+1 to 20	13	1.04	1.57	0.73	0.91	0.35	0.31	0.31	0.37	0.25	0.50	1.60	2.79	0.80	1.16	0.86	1.80	1.36
21 to 40	11	1.20	1.04	0.88	0.96	0.35	0.33	0.32	0.38	0.22	0.61	2.43	2.94	1.82	1.26	0.97	1.88	1.46
41 to 60	15	1.17	1.57	0.82	1.12	0.35	0.32	0.32	0.45	0.23	0.75	2.26	3.30	1.35	1.09	0.83	1.81	1.70
61 to 80	11	1.11	1.47	0.78	1.07	0.36	0.32	0.33	0.40	0.19	0.73	2.11	3.28	1.23	1.12	0.87	2.26	1.61
81 to 283	5	0.76	0.85	0.47	0.54	0.32	0.25	0.29	0.31	0.22	0.24	1.49	2.23	0.92	1.14	0.86	182	0.92

(To be concluded.)

Clinical Department.

PARALYSIS AGITANS AND MYOPATHIC DYSTROPHY OCCURRING IN UNCLE AND NEPHEW, WITH EVIDENCES OF INTERNAL GLANDULAR DYSCRASIA IN THE LATTER.

BY MICHAEL OSNATO, M.D., NEW YORK,

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WITHOUT attempting to draw any conclusions from the two cases about to be reported, it is, nevertheless, necessary to point out the fact that there has been considerable discussion recently as to whether paralysis agitans, on the one hand, and certain types of muscular atrophy on the other, are not caused by disturbances in the function or development of the glands of internal secretion. Nothing has been proven definitely to support this contention, nevertheless the work of Timme with certain cases of muscular atrophy and the parathyroid hypothesis, supported by Roussy and Clunet, are sufficiently suggestive to make a report of two cases of this kind justifiable. The recent work of Farhon and Farhon, quoted by Falta (p. 463), is confirmative apparently of their findings as regards the parathyroid in paralysis agitans.

Timme (Proceedings of the N. Y. Neurological Society, *published in the Journal of Nervous and Mental Diseases*, March, 1917) has seemed to place the pineal gland in suspicion as the causative factor in muscular atrophy, particularly of the infantile, familial type. The case here reported seems to show the pineal shadow such as described by this author, and it also shows an unusually large and deep sella turcica, and there is some evidence of pineal dysfunction in the history of the case.

Both these patients have been under observation for a number of years on the Chronic Male Service of Doctors Brush and Browning at the Kings County Hospital.

The relationship between these patients is that of uncle and nephew, the older man being the brother of the younger man's mother. The older patient suffers from a typical paralysis agitans, the younger patient suffers from muscular atrophy of the Leyden-Moebius or infantile type.

The two cases are as follows:

CASE 1. A. D., age 80, widower; was perfectly well until the age of 72. At this time he noticed a tremor, which began in the right thumb and wrist, and gradually spread to the fingers and arm and forearm, and finally to the same place on the other side. At about this time, also, he became weak and stiff and did not walk as well as previously, and noticed that his memory was failing. He finally had to quit work because of these complaints. He was admitted to the Kings County Hospital in June, 1913, remained for six weeks, and

then was readmitted in April, 1916. On his last admission, it was found that he could not walk at all without assistance and that his tremor had become practically generalized, involving his head, both lower and upper extremities and face, and also his tongue. He was very much demented, disoriented as to time and place and for dates, and his speech was rambling and incoherent.

The *previous history* is that he always was a heavy and steady drinker, although at times he drank more than others. Venereal disease is denied, and the patient is said never to have suffered from convulsions and has never sustained any unusual or severe trauma, nor any serious illness.

The *family history* shows that the patient's father and mother died from causes unknown, when they were quite old; exact age not ascertainable. The patient was married at 34, had four sons and one daughter; three sons are now living; one son died from causes unknown. All five children had defective eyesight from early youth. The patient's wife died suddenly from heart disease at the age of 58. There is said to have been no mental trouble or insanity or epilepsy in the family.

Physical and Neurological Examination.—The patient is a very old man, fairly well nourished, with a blank expression on his face and sits, for the most part, quietly and without being able or willing to move very much. He has to be assisted to and from his bed, into his chair, and has to be spoon fed. He has a generalized tremor involving all four extremities, the head, face and tongue. This tremor is rhythmical, very regular, is static in character, but is made much more marked by stress and motion, has but little force and small amplitude, and disappears during sleep. In the head it causes to and fro nodding movements of a very rhythmical character. In other words, it is a typical paralysis agitans tremor. The patient also shows the typical deformity suggestive of this condition, particularly marked in the attitude of the fingers and hand, which appear in the posture usually described as pill rolling.

Coördination.—Both equilibratory and non-equilibratory are good. The patient cannot walk, and skilled acts are impossible of performance, both on account of the tremor and also on account of the deformity due to the paralysis agitans condition. Speech, however, is mechanically properly performed, but the patient talks in a rambling and incoherent manner, which will be described later.

Reflexes.—Both deep and superficial are equal and active and there is no Babinski and no clonus. The pupillary reflexes are all normal.

Muscle Strength.—Is normal for a man of his advanced age, and there are no abnormal associated movements.

Muscle Tone.—Particularly in the muscles of the arm, is increased. This increase in muscle tone is also quite evident in the muscles of the neck, particularly the trapezius and sternocleidomastoid.

Electrical Reactions are normal.

Sensory Examination discloses nothing abnormal and all the cranial nerves, including the fundus findings, are negative, excepting in the distribution of the 7th, wherein the muscles of expression are found to lack that mobility which they should have. The face is mask-like and expressionless and smooth.

Mental Status shows the changes usually found in advanced cases of senile dementia, namely, there are grave memory defects, both for recent and remote past and for dates. There is incoherence and confusion, with considerable clouding. The case presents absolutely nothing unusual, and has been recognized for a number of years as an ordinary case of paralysis agitans.

CASE 2. The nephew of this patient is also an inmate of the same ward at the Kings County Hospital and has been for a number of years. W. F., 39 years of age, single.

He began to walk at the age of 3½ years. The explanation given for the retardation of this function by his parents and his physician was that he had a weak back and flabby muscles, but his parents were told that he would grow stronger as he became older. He, however, was never able to walk properly, and until the 16th year he always had to walk on his toes in order to support himself in walking. He was never able to walk with his feet firmly on the ground, for fear of falling, and if he attempted locomotion in this manner he would fall backward; also, not quite so frequently, he fell forward. Aside from the profound retardation in walking, as a child he developed properly, talking at the age of one year, and the teeth appearing when he was six months old. Mentally, his development is said to have been normal in every respect. The first external evidences (hair on the pubes) of puberty appeared at the age of ten, and he is said to have had quite prominent genitals long before this, first noticed when he was five years of age, by his mother. The boy was never very tall for his age and was always considered dwarfish; even as a child it was remarked that he was much smaller than his companions.

The first signs of muscular atrophy appeared symmetrically about the hips and the back, and almost at the same time the lower limbs were noticed to be flabby and weak and atrophic. The muscular atrophy has spread very slowly indeed, and it is only during the past five years that any was evident in the shoulder girdle muscles, which are now, however, quite atrophic. His arms and forearms are also affected; also the muscles of the face and neck, of the trunk and abdomen are involved.

As a child, he is said to have escaped all the children's diseases, and in fact, has been particularly fortunate in being free from any sort of illness excepting the muscular atrophy. He, however, suffered always from childhood from periodical headaches which lasted three or four days each month and attacked the whole of the head. His family was peculiar in this respect, for his mother and his brothers and sisters and one of his uncles and he himself have always been subject to these same paroxysmal headaches in identically the same way, namely, they would last for from three to four days each month without being susceptible of relief.

The patient's mother was married twice and had two sons by her first marriage, and six children—four sons and two daughters—by her second marriage. The patient was the fifth child born from his mother's second marriage. All the children are living, and all of them from both marriages are perfectly well physically and mentally. In fact, all of these descendants have been practically free from any sort of illness, even the usual children's diseases having escaped them. They have suffered from no deformities, no convulsions and no attacks of mental trouble or of nervous trouble. The patient's parents and relatives have been interro-

gated, and it has been possible to trace three generations of the patient's relatives without finding any trace of a similar illness to the patients, in any of the ascendants.

A peculiar feature of this case which should be mentioned is the fact that this patient has never experienced sexual desire, although half a dozen times during his life he has had erections with emissions without masturbation.

The physical examination and neurological examination are absolutely negative in every possible respect excepting in so far as they relate to the x-ray findings and the condition of the muscles. The muscle strength through the body generally is greatly lessened, particularly in the extremities. There is still a very little strength in the muscles of the neck and abdomen and in those of the chest. The muscles of the spine and extremities are very much atrophied and the tone is greatly lessened, there being hardly the semblance of any muscular tissue or power in them.

The electrical reactions show no polar changes, but there is a considerable degree of lessened electrical irritability to both faradism and galvanism, the relative changes at the two poles, however, being normally maintained in the atrophic muscles. There are no sensory changes, and the mental status is normal.

The x-ray of this patient shows a definitely enlarged sella turcica. Dr. Archibald P. Evans, who has made a number of examinations for Dr. Timme, finds that the x-ray plate shows a definite pineal shadow such as has been described by Dr. Timme and others.

The fundi show distinct bitemporal pallor quite definite and undoubted, but there is no hemiopia.

Repeated examinations and testing show a high degree of sugar tolerance.

There are two very interesting points in the family history in both of these cases. In the case of the children of the uncle, it is noteworthy that all of them were very early affected by defective eyesight. The significance of this is not clear. The patient's mother and his brothers and sisters were subject to paroxysmal headaches lasting from three to four days, being periodical in character, occurring once each month. The significance of this fact can only be guessed at. There is a bitemporal pallor in the fundus of this patient to explain the headaches on the grounds of pressure from an enlarged pituitary or pineal gland, most likely pituitary. Whether a suspicion is justifiable in the mother and in the other members of the family suffering from these headaches that either the epiphysis or the hypophysis was responsible for the incidence of the headaches is a question. The patient continues to have these paroxysmal periodical headaches, but the other relatives no longer suffer from them.

The x-ray examination made in the case of the uncle shows nothing. The eye examination in this patient also discloses nothing. Tests for sugar tolerance in the younger patient have been repeatedly made and show a very high degree of sugar tolerance.

It may be perhaps important to draw attention to the fact that pubic hair appeared in the case of the nephew at a rather early age, and that also he is said to have had particularly well-developed genital organs when quite young. This possibly may be an indication of early atrophy of the pineal gland, or at least there is suggested the possibility that there was in this patient a disturbance in function of this gland.

Book Reviews.

Physical Exercise for Invalids and Convalescents. By EDWARD H. OCHSNER, B.S., M.D., F.A.C.S. Illustrated. St. Louis: C. V. Mosby Co. 1917.

This small volume of fifty-four pages is designed by its author to provide a convenient, compact manual of physical exercises for patients who are convalescing from surgical operations, or from severe illnesses and, also, for persons who are engaged in sedentary work and who, for the need of proper physical exercise, lack vigor. He has accordingly arranged, in an easily comprehended form, a series of forty exercises which may be performed without apparatus and in the patient's own room. A simple statement of the importance of exercise, with a few rules regarding their proper performance, form an opening chapter. Each exercise is described clearly and is accompanied by an illustration. It will prove its convenience and usefulness.

A Study in Hospital Efficiency as Demonstrated by the Case Report of the First Five Years of a Private Hospital. By E. A. CODMAN, M.D.

The previously issued reports on the end result system as demonstrated by this author have become well known. The present report is divided into three parts. The first part is called The Case Report and is "a practical illustration of the fact that it is possible to use the end result system in a hospital." Part two is on the financial report and is "an illustration of the money value of a surgeon's services, and the influence of the charitable hospitals on it." Part three is called the new organization and is "an illustration of how a group of earnest men may compete with the cliques who dominate the charitable hospitals in any city." The volume is well worth reading.

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THE GOVERNMENT WAR-RISK INSURANCE.

IN place of the pension system which has prevailed in our Army and Navy from time immemorial, the Government has inaugurated an excellent plan of War-Risk Insurance for the benefit of all who see active service in the present war.

The following persons are entitled to apply for this form of insurance:

(1) A commissioned officer (including a warrant officer) in active service in the military or naval forces of the United States.

(2) Any person, male or female, enlisted, enrolled, or drafted into active service in the military or naval forces of the United States, including non-commissioned and petty officers and members of training camps authorized by law.

(3) Any member of the Army Nurse Corps (female) or of the Navy Nurse Corps (female) while employed in active service under the War Department or Navy Department, respectively.

Any of the foregoing persons may take out a Government War-Risk Insurance policy ranging in amount from $1000 to $10,000. The premiums are to be paid monthly, and arrangements may be made whereby they may be deducted automatically from the monthly dues to the insured. For example, a person 21 years of age may take out a policy for $1000, for which sixty-five cents would be deducted from each month's wage. The monthly dues on a policy for $10,000 would be $6.50, and intermediate sums in proportion to their amounts. The premiums increase slightly with the age of the insured.

The policy covers partial as well as total disability, and death. The benefits will be paid by the Government in monthly installments to the insured, or to his heirs or beneficiaries. They are not subject to the claims of creditors of the insured or beneficiaries, nor are they assignable. Under certain restrictions, the insured may change the beneficiaries without their consent. In the instances above cited, the monthly payments would amount to $5.75 and $57.50, respectively. The policy covers twenty years, and at any time within five years after the close of the war, it may be changed to a life policy without any medical examination.

The army surgeons of the lowest rank, First Lieutenants, receive an annual salary of $2000; the next in rank, Captain, receives $2400; and a Major, $3000. These amounts are increased ten per cent. every five years, up to forty per cent. The age-limit of the physician's enlistment is fifty-five years. These salaries, in conjunction with the possible war-risk insurance, are probably more favorable than the former arrangement. The private soldier is far better provided for than he was under the old régime. The army surgeon receives no allowance by reason of dependents, nor is he compelled to turn over a portion of his salary to them, as is the man in the ranks. It is to be hoped that the army physicians, generally, who enlist, will avail themselves of the benefits of the war-risk insurance.

PRENATAL CARE AND INFANT MORTALITY.

THE Division of Hygiene of the State Department of Health, under its director, Dr. Lyman A. Jones, has instituted a system for the

fostering of pregnancy care, which is part of the general campaign to offset the ravages of war by a stricter and more efficient manner of saving infant life.

This system of pregnancy care consists of a series of letters which may be sent to any prospective mother in the State. The first letter is to be sent during the first month of pregnancy, and is full of sound advice adapted to the needs of the mother at this time. Each following month of pregnancy has its appropriate letter, until the series of nine are sent. For example, the first letter urges the necessity of a care-free and happy atmosphere during pregnancy, and refutes the old belief in the possibility of "marking" babies. The second letter recommends choosing at once a doctor and a nurse, and explains the desirability of being under medical charge from the beginning. The third letter deals principally with diet, the fourth with simple rules of hygiene and advice regarding proper clothing. The fifth letter is devoted to the baby, his clothes and articles necessary for his care. The remaining letters are full of miscellaneous and necessary information. These letters are excellently arranged, and are calculated to appeal by the sympathetic and reassuring manner in which they are written. They will be furnished free to any physician who may wish them, or to any patient whose name is sent by her physician to Dr. Jones. The Department is anxious, in this manner and through the coöperation of doctors throughout the State, to extend its field of service, and in this practical way to prevent the unnecessary loss of infant life to this community through the ignorance and carelessness of mothers.

HEALTH LEGISLATION RECOMMENDED BY STATE DEPARTMENT OF HEALTH.

THE State Department of Health has submitted to the Legislature five important bills. The first bill relates to the urgent need of proper supervision of the health of school children. It reads:

"To provide for the appointment of a school physician and school nurse in each city and town, but authorizing cities and towns under conditions to unite in such appointments; such officials to aid in establishing minimum standards in the inspection of school children and school buildings, under the supervision of the State Departments of Health and Education."

There has never been adequate regulation affecting the isolation of prisoners who are put in jail suffering from communicable diseases.

"Since it is a matter of experience that persons committed to penal institutions are frequently suffering from disease, especially tuberculosis and venereal diseases, often in a communicable stage, a bill, prepared after conference with the Board of Prison Commissioners, requires a medical examination such as the department may prescribe of all individuals committed for a period of thirty days or more. The object of this measure is to ensure that a prisoner suffering from disease shall not endanger fellow inmates by transmitting infection to them during detention and to safeguard against the possibility of the disease being communicated to others after discharge."

The third measure provides for the destruction, after periods of time, of confidential reports on venereal diseases, and the fourth measure prescribes the conditions under which remedies for the treatment of these diseases may be distributed and sold, following to a degree the provisions of present laws relating to the sale of narcotic drugs.

The final measure concerns administrative detail, and aims to provide analysts and chemists of the food and drug division with the same authority as that now held by inspectors in regard to the seizure and destruction of unfit food products.

MASSACHUSETTS MEDICAL SOCIETY DUES.

IT will be much appreciated by the officers of the Massachusetts Medical Society if the Fellows will send in their payment of dues promptly. The bills for this year's dues should be in hand, and it is urged that they be met with as much dispatch as possible, as a ready return of remittances will facilitate matters greatly.

MEDICAL NOTES.

LECTURES ON TREATMENT OF INFECTED WOUNDS.—Under the direction of the University and Bellevue Hospital Medical College, New

York, Dr. Edward K. Dunham, Emeritus Professor of Pathology and Major, Medical Reserve Corps, gave a series of five lectures on "Principles Underlying the Treatment of Infected Wounds."

COMPARISON OF CITY-BRED AND COUNTRY-BRED BOYS.—General Crowder, in reviewing statistics regarding the physical qualifications of city boys as compared with country boys, states that, although the country boy may be more accustomed to hard physical labor, he is not superior in the possession of the degree of physical soundness essential to his acceptance as a soldier.

"A special comparison made by the Provost Marshal General's office between ten large cities and ten rural counties in various parts of the country, shows that of 35,017 registrants in the selected cities, 9969 were rejected, while out of 44,462 registrants in rural areas, 12,432 were disqualified. The result is virtually a tie, as 28.47% of the city boys were rejected as against 27.96% of the country boys."

REORGANIZATION OF CINCINNATI HOSPITAL.—By a new charter just put into effect, all of the medical, scientific and nursing work in the new Cincinnati City Hospital is placed under the direction of the University of Cincinnati. The charter provides that the medical director of each department shall be the professor in the corresponding department of the medical college. The charter removes the hospital entirely from the sphere of politics. The city will continue to pay the general operating expenses of the hospital, such as the heating and lighting, food, engineers, janitors, etc., while the University will pay all the expenses of the medical, surgical, scientific and nursing service.

BURNING OF HOSPITAL IN OTTAWA.—The Water Street General Hospital of Ottawa, Canada, was partly destroyed by fire on January 10. All but one of the 158 patients were saved and another patient died from the effects of the shock.

CONNECTICUT HOSPITAL BURNED.—A section of the main building of the Connecticut Hospital for the Insane, at Middletown, Conn., was burned on January 10. About 250 patients were in the building, and all were carried to places of safety.

WAR NOTES.

TUBERCULOSIS IN THE UNITED STATES ARMY.—According to Colonel George M. Bushnell of the Surgeon-General's Department, less than 1% of the 800,000 men examined for the United States Army were found to be tubercular. He stated that measures are being taken to keep infected men from entering the Army by draft and from remaining in the Army after the disease has been discovered.

STATE OF SOLDIERS' HEALTH AT CAMP DEVENS.—To refute erroneous rumors which have been sent about regarding the prevalence of pneumonia at Camp Devens, the following official figures have been published. Among the 27,000 men in the Camp at the present time, there are but six cases of pneumonia. Since October 1, there have been 44,000 men in the Camp, and of this number twenty deaths have occurred. In the last eight weeks there were but six deaths.

"Since the hospital opened in September, there have been 5010 patients admitted, including all sent for measles, for minor treatments of various sorts and for observation. Orders are that no soldiers shall be kept overnight at the infirmaries in each regiment. All are sent to the base hospital,—a remarkably equipped institution, presided over by physicians and surgeons of high reputation, who left their practice throughout New England, and are commanded by Major Channing Frothingham, formerly of the Peter Bent Brigham Hospital, Boston."

SURGEON-GENERAL'S REPORT.—The report of the Surgeon-General of the Army has been issued. It states that the general health conditions of the United States Army, for the calendar year 1916, were in all respects satisfactory, and, in view of the unusual circumstances connected with the mobilization on the border and the expedition into Mexico, may be fairly regarded as specially creditable to those directly associated with the management of all matters pertaining to the health and sanitation, particularly of the troops serving in the Southern Department. The mean strength (corrected for time) of the entire Army, American and native troops, including the National Guard, was 176,803 for the year 1916. Its non-effective rate from all causes in the year was 24.26 per 1000, and for disease alone, 20.55, both of which ratios were slightly lower than for the previous year, 25.22 and 20.85, respectively. The mean strength of the entire Regular Army for 1916, upon which the statistics contained in the annual report are based, was 110,454. The non-effective rate for the entire Regular Army for 1916, from all causes, was 26.99 per 1000, and for disease alone 22.63, being slightly higher than for the previous year, 25.22 and 20.85, respectively, but much lower than the average of these rates for the decade, 34.99 and 29.65, while that for the year 1906 was 47.86 per 1000, from all causes. The death rate of the entire army for 1916, from all causes, was 5.19 per 1000, compared with 4.45 for 1915, which was slightly higher than the lowest mortality rate in the Army for many years, 4.40 for 1914. The death rate from disease was 2.71 per 1000 for 1916, as compared with 2.53 for 1915; the average for the decade was 2.94 and for the year 1906, 3.77.

COMMISSIONING OF NURSES.—About one hundred nurses to be attached to the War Emergency Hospital at Commonwealth Armory, will be commissioned by Governor McCall as second

lieutenants. The Women's Council of National Defense will be asked to coöperate in the selection of the nurses. These nurses will be called for duty only in some grave emergency, and then for a limited time only. Governor McCall in sending official notice of his intentions to General Ames stated:

"England and Canada, since the war began, have seen the necessity and desirability of recognizing their nurses and have commissioned those of proper training and experience in service, with the rank and pay of second lieutenants.

"In recognition of the value of such service, and the honor of the profession, I shall be glad to commission, upon the approval of the Military Council, with the rank of nurse and second lieutenant, in the State Guard, such nurses."

SPECIALIZED EXAMINATION OF RECRUITS.—For the examination of recruits, which will come under the next draft, two committees have been formed in Boston, made up of specialists in a variety of fields, which will give detailed and expert examinations to all men who appear to require a more thorough examination than that given by the local draft board. These two committees are under the direction of Dr. Henry Jackson, who will have headquarters at the City Hospital, and Dr. Charles L. Scudder, who will have headquarters at the Massachusetts General Hospital. There are more than fifty of such committees throughout the State, and to these committees will be sent all doubtful cases and cases which may appeal to the board for a disputed examination.

"The medical representatives of a local board, for example, may be uncertain whether the sight of a registrant is actually as faulty as he would make it appear, and may have neither time, equipment nor expert knowledge for the more elaborate examination required to make certain.

"In such case of doubt the registrant may be referred to the advisory committee. So, too, it is understood, a registrant dissatisfied with the local examination may seek a supplementary examination from the expert committee.

WAR RELIEF FUNDS.—On Jan. 19 the totals of the principal New England war relief funds reached the following amounts:

Halifax Fund	$682,496.86
French Wounded Fund	314,670.72
Armenian-Syrian Fund	279,627.37
Permanent Blind Fund	135,925.24
Italian Fund	131,725.18

BOSTON AND MASSACHUSETTS.

AWARD OF HONORS TO HARVARD MEDICAL STUDENTS.—On January 23, at the Harvard Medical School, there was held a meeting to award honors and present diplomas to students of the first rank in the second, third and fourth classes. President Lowell was present and an addresss was delivered by Bishop Lawrence. Dean Bradford presented the diplomas. Following the meeting an informal reception was given by the Students' Association.

RESOLUTION REGARDING SUGAR CONSERVATION BY MALDEN MEDICAL SOCIETY.—At a meeting of the Malden Medical Society, held recently, the following resolutions regarding the conservation of sugar were drawn up and were forwarded to Food Administrator Hoover, at Washington, and Mr. Endicott, the food administrator of Massachusetts. The resolutions were as follows:

"The members of this society are witnesses of the distress resulting from the lack of sugar in many homes. Children, invalids and the aged are especially suffering from the lack of this important food. We note the abundance of candy, which is an expensive and often injurious luxury. Immediate action is needed for the relief of present conditions.

"We suggest that a system be instituted which will permit an adequate per capita allowance of sugar weekly, and that no sale of sugar for the manufacture of luxuries be allowed until a liberal and continuous supply for domestic use is assured.

"We are not unmindful of the commercial arguments against this proposal, but we submit that the present hygienic exigency rises immensely above all other considerations."

BOSTON HOMEOPATHIC MEDICAL SOCIETY.—At the annual meeting of the Boston Homeopathic Medical Society, held at the Evans Memorial Hospital, the following officers were elected: Dr. Edward P. Ruggles, president; Dr. Mary A. Leavitt, first vice-president; Dr. Clarence Crane, second vice-president; Dr. Clifford D. Harvey, secretary; Dr. Nathan S. Eastman, associate secretary; Dr. T. M. Strong, treasurer; Dr. Ernest C. Jordan, auditor, and Drs. Howard E. Allen, Howard P. Bellows and Charles T. Howard, censors.

SHELL SHOCK.—At the meeting of the Boston Society of Psychiatry and Neurology, held at Harvard Medical School on January 8, Dr. Frankwood E. Williams, secretary of the National Committee for Mental Hygiene, presented several reels of films on the subject of "Shell Shock."

SPRINGFIELD ACADEMY OF MEDICINE.—At the January meeting of the Springfield Academy of Medicine, held on January 8, Dr. Robert M. Green, of Boston, spoke on "Abdominal Visceroptosis." The February meeting will be addressed by Dr. W. P. Graves of Boston, the March meeting by Dr. Willard Bartlett of St. Louis, the April meeting by Dr. E. S. Judd of Rochester, Minn.

HOSPITAL BEQUEST.—By the will of the late Miss Frances J. Chamberlain of Exeter, N. H., the Exeter Cottage Hospital is the recipient of a gift of $500.

Obituary.

THEODORE CALDWELL JANEWAY, M.D.

THE sudden and untimely death of DR. THEODORE CALDWELL JANEWAY, of Baltimore, adds another illustrious name to the list of recent losses at Johns Hopkins University. Dr. Janeway was born in 1872, the son of the late Dr. Edward S. Janeway, of New York City. He was graduated from Yale in 1895, and was at once appointed instructor in bacteriology in Columbia University. He later became professor of medicine in the College of Physicians and Surgeons at Columbia. In 1914 he was elected professor of medicine at Johns Hopkins, succeeding Dr. L. F. Barker. Upon the entry of the United States into the war, Dr. Janeway was appointed a major in the Medical Officers Reserve Corps. He had done a considerable amount of research work for the government. His work on blood pressure is more widely known than any other of his other writings. He is survived by a widow and five children.

Miscellany.

GOITRE IN ALBERTA.

THE following letter which appears in *The Calgary Daily Herald* gives an illuminating account of the prevalence of goitre in this section of Canada:

"An efficient medical health department is supposed to be a constituent part of the government of every subdivision of the British Empire, but in this branch of the organization, Alberta is woefully lacking.

"It is the duty of competent officials in a new country like this, to keep close supervision of all diseases and note any variations arising consequent on surroundings, climate, altitude, etc., etc., and more especially on all diseases liable to have far-reaching effects on the present or future well-being and health of the community.

"By far the most serious disease that is facing the people of the province as yet is goitre, commonly known as thick neck or Derbyshire neck, which has already claimed its victims by thousands, and yet the department refuses to recognize the fact of its presence even when I called its attention to it in the watershed of the Bow river, and offered ocular proof, more than twelve months ago, through our member of parliament, the Hon. C. W. Fisher. Nothing has been, or is being done by the government towards the control or cure of the disease, although I find and have reported that in the village of Cochrane alone 100 per cent. of the British born girls located here before puberty, and in residence since 1910, have contracted the disease. The surrounding country shows a similar state of affairs, and in Calgary, from the amount of goitrous deformity I can see amongst the young women passing along the streets, I would expect about the same approximate percentage. Medical scientists have not decided whether goitre is caused by lime, germs, microbes of organisms in the water supply, hence they do not know what antidote to apply to the raw water. They have found, however, that whatever it is in the water that causes the disease can be destroyed by heating the water to a temperature of over 160 degrees Fahrenheit. Hence it follows that boiling all water intended for drinking purposes will reduce to a minimum the risk of contracting the disease, whilst also, by cutting off the supply of poison to the system, it will have a tendency to retard, if not to reduce, the growth of the tumor.

"A health ordinance should be promulgated, making it compulsory that all fluid for children's drink should be previously boiled (milk should be heated to over 160 degrees Fahrenheit) and that men and women should use tea, coffee or beer, if they find plain boiled or distilled water unpalatable. Goitre is a disease which, when once acquired and not cured, can be transmitted even to the third and fourth generation of posterity, therefore people with this disease should not be permitted to indulge in parenthood but should have 'birth control' compulsorily forced upon them, otherwise we are apt to find goitre, with its consequent deformity and mental degeneracy, the rule in the next generation of the native born here, and freedom from the disease the exception.

"Females are more quickly susceptible to the disease than males, although it attacks both sexes. People who are not exposed to the infection before maturity take a considerable longer time to contract the disease. Every case of common goitre is a prospective case of exophthalmic goitre with its necessity for operative interference and consequent dangers. I consider that a common goitre has passed the half-way post towards exophthalmic.

"It has frequently happened in the past that chemists in their laboratories have compounded medicinal preparations for the cure of various ailments long before the medical scientists have succeeded in isolating the germ which has caused the disease. In the case of goitre, chemists in the United States claim that they have discovered combinations of remedies which are giving satisfactory results in the treatment of the disease. I find, however, on correspondence, that none of them are prepared to quote a percentage of cures effected, but there is an expression of general willingness on their part to submit their remedies to an official test in order to establish a percentage of cures, and to demonstrate any shortcomings of the remedies which would enable the chemists to make improvements. I attempted, with the aid of the Hon. C. W. Fisher,

to have this investigation undertaken, under government auspices, in the city of Calgary, where there are some thousands of cases with fairly identical surroundings, but was unsuccessful in my application.

"Delay in the discovery of the cause or of a cure for this disease is daily adding to the number of the victims, as well as to the immensity of the task of handling it.

"So now, again impressing upon your readers the vital necessity of 'boiling all fluids for drinking purposes,' I think we may safely leave the matter in the hands of the ladies to have the necessary legislation adopted, that will not only protect their children, but will protect their own figures from a deformity which is plainly recognizable to anyone who sees them.

T. G. RITCHIE, M.D., L.R.C.S.,
Edinburgh, 1872.

COCHRANE, Alta., April, 1917."

THE MANDRAKE IN FOLK-MEDICINE.

THE London *Lancet* for November 17, 1917, gives the following account of the mandrake in folk-medicine:

"The root of the mandrake (*Atropa mandragora, M. Officinarum*) is a ready-made amulet, resembling, as it does, the lower limbs of a human being and often a grotesque human body. A naked mannikin may suggest to primitive minds all kinds of thoughts. Hence in Scripture the fruit or root of the mandrake figures as a love-charm (Genesis xxx.), by means of which Rachel is enabled to escape the reproach of barrenness and to become the mother of Joseph. At a later period, as is shown by Professor Sir James G. Frazer in his recently published monograph on 'Jacob and the Mandrakes,' the root, rather than the fruit of the plant, became a sovran amulet. Solomon, according to 'the Arab Dioscorides,' Ibn Beithar, carried a mandrake in his signet ring, which gave him command over the jinn, or spirits. The plant, Ibn Beithar avers, is a remedy for all maladies caused by jinn, demons, and Satan. It cures lameness, cramp, epilepsy, elephantiasis, madness, loss of memory, besides affording protection against every kind of mishap. The mandrake root was well known as a charm to the ancient Greeks and to Pliny and the Romans, and it reappears in the Middle Ages as the center of a perfect tangle of sinister superstition. As a rule, the plant was held to spring up under the gallows where it was fertilized by the drippings of corpses. In order to obtain it a laborious ritual had to be observed. It was death to dig it up, so its roots were carefully loosened, and a dog, preferably black, was tied to it, which, springing after its master or tempted by food, drew the plant out of the ground and died in the act, while the plant shrieked dolefully. The evil genius having left the plant and passing into the dog, the root might be safely handled and used as a valuable ingredient in the pharmacopoeia, where it figured as a promoter of conception and as a cure-all. The Transylvanian gipsies still practise this ritual. In Syria and the East generally the mandrake is still used as a charm, and the making of counterfeit mandrakes, closely resembling hairy ape-like men, is carried on as an industry. Sham mandrakes are often sold for large sums.

"'To make the counterfeit mandrake,' says 'A Thousand Notable Things' (London and Salisbury, 1791), 'which hath been sold by deceivers for much money, do thus as followeth: Take the great double root of Briony, newly taken out of the ground, and with a fine sharp knife frame the shape of a man or a woman ['the womandrake' of our rustics] . . . with his stones and cods, and other members thereto, and when it is clean done, prick all these places with a sharp steel, as the head, the eyebrows, the chin, and privaties, and put into the said holes the seeds of millet, or any other that brings forth other small roots, that do resemble hairs (which Leek seed will do very well, or else Barley). After this, put it into the ground, and let it be covered with earth, until it have gotten upon it a certain little skin, and then thou shalt see a monstrous idol, and hairy, which will become the party, if it be workman like, or cunningly made or figured.' The quotation is from Mizaldus. 'Another trim way for the like, is in the *Natural and Artificial* conclusions, englished by Thomas Hill.'

"It is curious to reflect that this quotation from Mizalde was served up to our great grandmothers as lately as 1791. Present-day rustics attach great virtue to the mandrake root, which is eaten as a cure for indigestion. The root is said to taste bitter, but the fruit can be eaten, a little at a time, and the fruit, perhaps, rather than the root, was the ancient mandragora, used as an anaesthetic or narcotic, and known as such to Shakespeare, who, always keenly reflecting the popular beliefs of his age, makes Iago say to his dupe—

> 'Not poppy, nor mandragora,
> Nor all the drowsy syrups of the world,
> Shall ever medicine thee to that sweet sleep
> Which thou owedst yesterday.'

The literature of the mandrake is enormous. Perhaps one of the best accounts of it was given by Mary Howitt in her poem 'The Mandrake,' which figured in her charming work, 'Birds and Flowers and Other Country Things,' published in 1838."

WAR COMMITTEE FOR THE UTILIZATION OF HOSPITAL FACILITIES.

A MEETING of the War Service Committee of the American Hospital Association was held in New York City on Wednesday, Nov. 21, 1917. The War Service Committee is a national committee which has been instructed by the American Hospital Association "to inform itself of all military facts and requirements in which hospitals may be concerned, to be in readiness to consult with military authorities in relation thereto, and to assist wherever hospital service may be of value to the country." The committee has established headquarters in Washington, which will be in charge of the secretary, Mr. Richard P. Borden, of Fall River, Mass.

The following statement has been issued by Dr. S. S. Goldwater, acting as chairman:

"From such information as the members of the War Service Committee have thus far been able to gather, the committee infers that it is the policy of the Army to ignore existing hospital facilities in its preparation for the care of invalided men. It would be wiser, in the opinion of the committee, to formulate a program based upon the principle that existing medical institutions, including hospitals and sanatoria, should be utilized wherever and whenever they are capable of rendering the required service. The unnecessary duplication of hospital plant and organization appears to the committee to be deplorable at a time when the nation should husband its resources in order to increase its military and national efficiency.

"The ideas of the War Service Committee on this subject are practically the same as those of the British Ministry of Pensions, which is responsible for the medical treatment of disabled men, who have been discharged from the British Army. In a statement made to the British Hospitals Association on October 19th, 1917, Mr. Horne, representing the Pensions Ministry, said that the Ministry 'had no intention of setting up in various parts of the country institutions, which would compete with established voluntary hospitals. They had in certain instances provided institutions of which there was a dearth, such as those for neurasthenia, tuberculosis, and epilepsy; generally, the accommodation required was provided by enlarging existing institutions.'

"The committee has been unable to learn of any government plan for the care of discharged soldiers who may still require ambulant medical treatment. In this connection, it might be advantageous to consult recent orders of the British Army Council in relation to the handling of two categories of patients: first, soldiers, who at the time of their discharge require further treatment; second, soldiers who at some time after their discharge are found to require further treatment. The instructions in question apply 'to those suitable for treatment as out-patients in hospitals.'

"In order to facilitate coöperation between the Army and civilian hospitals, the committee suggests the organization of an Auxiliary Medical Corps for Home Service. This Corps should be composed of physicians and surgeons who are ineligible for active military duty, and should be made up, in the first instance, of men holding hospital appointments.

"The committee maintains that the efficiency of hospitals and the adequate preparation of recent graduates in medicine for clinical practice, not only among the civilian population, but in the Army, depends in large part upon the maintenance by civilian hospitals of an adequate system of clinical training. In the opinion of the committee, it is inadvisable for hospitals having a graduated intern service of eighteen, twenty-one, or twenty-four months' duration to abandon such service, in order to substitute an ungraded or improperly graded service of only twelve months' duration."

The chairman has been authorized to present the views of the American Hospital Association to the military authorities through the General Medical Board of the Council of National Defense, or otherwise.

ANTHRAX IN MASSACHUSETTS.

THE bulletin of the State Department of Health for Oct., 1917, gives an account of the prevalence of anthrax in Massachusetts during the current year. Whereas since 1908, the incidence of this disease has not risen above eleven cases per year, in 1916 there were 31 cases and for the first nine months of 1917, there have been 39 cases.

"The demand for leather has compelled the manufacturer to secure hides from new areas in foreign territory, with regard to which our knowledge as to the prevalence of diseases is meager. This increase of anthrax has been coincident with the shipping of hides from these newer sources.

During the first nine months of the present year, 6 of the 39 cases reported have been fatal. There was 1 case of pulmonary anthrax; the remainder were external. The pulmonary case and 34 of the others were infected through the handling of hides, 3 from the handling of hair, and 1 from the handling of wool.

English investigators have reported recently finding cases of anthrax simulating cases of cerebrospinal meningitis, the diagnosis of anthrax not being established until anthrax bacilli had been demonstrated in the spinal fluid.

Since anthrax cannot be accurately diagnosed except through bacteriological findings, smears have been urged in all cases, with the following results:

	Cases.
Smears positive,	24
Diagnosis made at autopsy,	1
Smears negative,	8
No laboratory examination,	6
	39

Of the 8 negative smears, 4 were isolated cases, each being the only case in the locality, and each handled hides which were not associated with other cases of the disease. The 4 remaining negative smears, in cases 4, 17, 29 and 35, occurred in association with other cases in fellow workmen who had positive smears, and thus diagnosis was undoubtedly correct.

Of the 6 cases from which no smear was taken, several were associated with positive cases, suggesting that no error was made in the diagnosis. To illustrate: cases 20, 22 and 24 all handled the same lot of hides. A smear from case 24 was positive, also case 6 was a fellow workman with case 16, the latter case being confirmed by a smear.

Thus the diagnosis was confirmed bacteriologically in 25 cases (including 1 where the diagnosis was made at autopsy) and was undoubtedly correct in 7 other cases,—a total of 32 certain cases.

When a stevedore or longshoreman was the first case reported, the manufacturer to whom the hides handled were consigned and the board of health of the town to which the shipment was being forwarded were notified of the probable infection of the hides in question.

For prevention of infection the United States Bureau of Animal Industry recommends that hides be immersed for not less than forty-eight hours in a 1 to 1000 solution of bichloride of mercury, or immersion in a 10 per cent. salt solution containing not less than 2 per cent. hydrochloric acid for forty-eight hours.

For hair disinfection, in a recent report of the Local Government Board (new series, No. 112) it states 'that for steam disinfection to be successful, the cases or bales should be opened, the bundles removed and most of the strings cut, unless the temperature inside the steam disinfecting apparatus is maintained at 230° F. for half an hour.' "

SHELL SHOCK AMONG TROOPS.

THE situation regarding the prevalence and care of shell shock among troops is admirably summed up by Major Thomas W. Salmon, medical director of the National Committee for Mental Hygiene, in the report of his recent studies in England. He states:

"No medico-military problems of the war are more striking than those growing out of the extraordinary incidence of mental and functional nervous diseases—'shell shock.' Together these disorders are responsible for not less than one-seventh of all discharges for disability from the British Army, or one-third, if discharges for wounds are excluded. A medical service newly confronted like ours with the task of caring for the sick and wounded of a large army cannot ignore such important causes of invalidism. By their very nature, moreover, these diseases endanger the morale and discipline of troops in a special way and require attention for purely military reasons.

"Although an excessive incidence of mental diseases has been noted in all recent wars, it is only in the present one that functional nervous diseases have constituted a major medico-military problem. As every nation and race engaged is suffering severely from these disorders, it is apparent that new conditions of warfare are chiefly responsible for their prevalence. None of these new conditions is more terrible than the sustained shell fire with high explosives which has characterized most of the fighting. It is not surprising, therefore, that the term 'shell shock' should have come into general use to designate this group of disorders. This terse name is applied to practically any nervous symptoms in soldiers exposed to shell fire that cannot be explained by some obvious physical injury. If all neuroses among soldiers were included in these groups, the use of the term 'shell shock' might be defended. But many hundreds of soldiers who have not been exposed to battle conditions at all, develop symptoms almost identical with those in men whose nervous disorders are attributed to shell fire.

"The non-expeditionary forces supply a considerable proportion of these cases. One of the chief objections to the use of the term 'shell shock' is the implication it conveys of a cause acting instantly. The train of causes which leads to the neurosis that an explosion ushers in is often long and complicated. Apparently in many military cases mental conflicts in the personal life of the soldier, that are not directly connected with military situations, influence the onset of the neuroses. Thus men who have been doing very well in adapting themselves to war develop 'shell shock' immediately after receiving word that their wives have gone away with other men during their absence. With a view to discovering the prevalence of the neuroses and insanity, Sir John Collie, president of the Special Pension Board on Neurasthenics, made an analysis of 10,000 discharge certificates for disability, interpreting the diagnosis given in the light of his very large experience. He found that of these 10,000 consecutive cases, the neuroses constituted 20 per cent.

"If the policy is adopted of caring in France for mental cases likely to recover and evacuating all others to the United States at once or at the expiration of six months' treatment, we may expect to receive at the port of arrival in the United States, not less than 250 insane soldiers

per month, from an expeditionary force of 1,000,000. It should be remembered that if the policy recommended of evacuating to the United States only the patients who fail to recover in six months in France is adopted, some very intractable cases will be received. For the most part these will be patients with a constitutional neuropathic make-up—the type most frequently seen in civil practice.

"Many of these cases will prove amenable to long-continued treatment and much can be expected from the mental effect of return to the United States. It is very important not to fall into the mistake made in England of discharging these severe cases with a pension because of the discouraging result of treatment. To do so will swell the pension list enormously, as can be seen by the fact that fifteen per cent. of all discharges from the British army are unrecovered cases of mental diseases and war neuroses. Quite aside from financial considerations, however, is the injustice of turning adrift thousands of young men who developed their nervous disability through military service and who can find in their home towns none of the facilities required for their cure. It is recommended, therefore, that no soldiers suffering from functional nervous diseases be discharged from the army until at least a year's special treatment has been given."

INCREASE IN TUBERCULOSIS.

THE statement cabled from London that Germany is suffering an enormous increase in tuberculosis, mainly as the result of the restricted food supply, calls forth a warning from the Department of Health that, despite a much greater amount of food in this country, a similar disastrous increase in tuberculosis and other diseases may occur here if the public does not take a greater interest in the science of nutrition.

Even in England, where, according to cabled reports, meat and bread are selling for prices lower than those prevailing here, the war has caused a marked increase in tuberculosis. Newsholme, the chief medical officer of the Local Government Board, has just compiled figures showing that in England and Wales the increase in the tuberculosis mortality has amounted to 12% over the figures for 1913. In 1914 the increase amounted to 1582 deaths, to 4621 in 1915, and to 4490 in 1916. Altogether, therefore, in England and Wales alone, the war caused more than 10,000 extra deaths from tuberculosis in three years. Conditions in France are even worse.

In New York City, the Department of Health has on record the names and address of over 35,000 persons suffering from tuberculosis, and of these over 8000 die annually.

A table compiled by Dr. W. H. Guilfoy, the Health Department's registrar of records, shows that the steady downward course of the deaths from tuberculosis has not only been arrested, but that the number this year shows an actual increase over last year's figures. In view of the experiences of the other warring nations, this is certainly disquieting.

Inasmuch as tuberculosis is so intimately associated with under-nourishment, special interest attaches to the report just issued by the Health Department's Bureau of Child Hygiene, concerning the physical examination of school children. According to this report, the number of under-nourished school children in this city is much greater than was heretofore suspected.

According to investigations made by the Health Department's inspectors, one-eighth of all the school children were found to be under-nourished. On the basis of a million school children, this represents the enormous number of 125,000 under-nourished children in the city of New York. One-quarter of this number were so badly under-nourished as to require medical care.

"We have been much concerned," said Commissioner Emerson, "about the great lack of even elementary knowledge among a large proportion of the people concerning the main facts of food and nutrition. Our studies show that this constitutes a distinct health menace. We have been trying to teach the people by means of posters, leaflets, food exhibits and demonstrations, but progress is slow. This winter we began classes of practical instruction in dietetics at some of our Baby Health Stations. This work is carried on by the nurses of the health stations, for they know the needs of the mothers in their district. In passing, I may add that the new activity emphasizes anew the fact that the Baby Health Stations are essentially educational centers. The increase in the death rate from tuberculosis, while only small, should serve as a warning. I hope it will be heeded."

PRINCIPAL CAUSES OF DEATH.

THE Census Bureau issues a statement summarizing mortality statistics for 1916:

"According to a preliminary announcement with reference to mortality in 1916, issued by Director Sam. L. Rogers, of the Bureau of the Census, Department of Commerce, and compiled under the direction of Dr. William H. Davis, chief statistician for vital statistics, the 'registration area,' which contained approximately 70% of the population of the entire United States, reported for that year 1,001,921 deaths. Of these deaths, nearly one-third were due to three causes—heart disease, tuberculosis, and pneumonia—and nearly another third were

charged to the folowing nine causes: Bright's disease and nephritis, cancer, apoplexy, diarrhea and enteritis, influenza, arterial diseases, diabetes, diphtheria, and typhoid fever.

The deaths from heart diseases (organic diseases of the heart and endocarditis) in the registration area in 1916 numbered 114,171, or 159.4 per 100,000 population. The death rate from this cause shows a marked increase as compared with 1900 (the earliest year for which the annual mortality statistics were published), when it was only 123.1 per 100,000. The increase has not been continuous, however, the rate having fluctuated from year to year.

Tuberculosis in its various forms caused 101,396 deaths in 1916, of which 88,666 were due to tuberculosis of the lungs. Because of progress in the prevention and treatment of tuberculosis of all kinds, the decline in the tuberculosis death rate in recent years has been most pronounced, having fallen from 200.7 per 100,000 in 1904 to 141.6 in 1916, a decrease of nearly 30%. Before 1904 the rate had fluctuated, starting at 201.9 in 1900. Even yet, however, tuberculosis causes more deaths annually than any other malady, except heart diseases, and about 37% more than all external causes—accidents, homicides, and suicides—combined.

Pneumonia (including bronchopneumonia) was responsible for 98,334 deaths in the registration area in 1916, or 137.3 per 100,000. This rate, although lower than that for any year from 1900 to 1910, inclusive, with the single exception of 1908, is higher than that for any of the years from 1911 to 1915, inclusive. The lowest recorded rate for all forms of pneumonia was 127 per 100,000 in 1914. The mortality from this disease, like that from tuberculosis, has shown a marked decline since 1900, when it was 180.5 per 100,000. Its fluctuations from year to year, however, have been pronounced, whereas the decline in the rate for tuberculosis has been nearly continuous.

The only remaining death rate higher than 100 per 100,000 in 1916 was that for Bright's disease and acute nephritis, 105.2. The total number of deaths due to these maladies in 1916 was 75,316; of this number, 69,395 were caused by Bright's disease and 5921 by acute nephritis. The mortality rate from these two causes has increased from 89 per 100,000 in 1900, with some fluctuations from year to year.

Cancer and other malignant tumors caused 58,600 deaths in 1916. Of these, 22,480, or nearly 39%, resulted from cancers of the stomach and liver. The death rate from cancer has risen from 63 per 100,000 in 1900 to 81.8 in 1916. The increase has been almost continuous, there having been but two years—1906 and 1911—which showed a decline as compared with the year immediately preceding. It is possible that at least a part of this increase is due to more correct diagnoses and to greater care on the part of physicians in making reports to registration officials.

Apoplexy was the cause of 58,233 deaths, or 81.3 per 100,000. The rate from this disease increased gradually, with occasional slight declines, from 1900 to 1912, and since 1913 the increase has been continuous.

Diarrhea and enteritis caused 56,763 deaths in 1916, or 79.3 per 100,000. The rate from these diseases has fallen somewhat in recent years, having been 90.2 in 1913, and is very much lower than the corresponding rate for 1900, which was 133.2. Nearly five-sixths of the total number of deaths charged to these causes in 1916 were of infants under 2 years of age.

Influenza was responsible for no fewer than 18,886 deaths in the registration area in 1916, or 26.4 per 100,000. The rate from this malady, which fluctuates very considerably from year to year, was higher in 1916 than in any preceding year since and including 1900, with the single exception of 1901, when it stood at 32.2.

Arterial diseases of various kinds—atheroma, aneurism, etc.—were the cause of 17,115 deaths in 1916, or 23.9 per 100,000. This rate, although somewhat lower than the corresponding ones for 1912 and 1913, is higher than those for 1914 and 1915. The rate for these causes increased continuously from 6.1 in 1900 to 25.6 in 1912.

Deaths from diabetes numbered 12,199, or 17 per 100,000. The rate from this disease has risen almost continuously from year to year since 1900, when it was 9.7.

No epidemic disease, with the exception of influenza, produced a death rate as high as even 15 per 100,000 in 1916. The fatal cases of diphtheria and croup—which are classed together in the statistics, but practically all of which are cases of diphtheria—numbered 10,367, or 14.5 per 100,000 population. The rate for diphtheria and croup in 1900 was 43.3, and the decline of nearly 67% from that year to 1916 is relatively greater than that shown by any other important cause of death. The rate fluctuated somewhat from 1900 to 1913, but has fallen continuously since the latter year.

The mortality rate from typhoid fever has shown a most remarkable and highly gratifying decline since 1900, having dropped from 35.9 per 100,000 in that year to 13.3 in 1916. The proportional decrease in the rate, amounting to 63%, is a close second to that shown for diphtheria and croup. The efficacy of the antityphoid vaccine and of the many improvements in methods of sanitation has been demonstrated in a striking manner by this great reduction in the typhoid death rate.

Measles, Whooping Cough, and Scarlet Fever.—The principal epidemic maladies of childhood—measles, whooping cough, and scarlet fever—were together responsible for 17,586 deaths of both adults and children, or 24.6 per

100,000, in the registration area in 1916, the rates for the three diseases separately being 11.1, 10.2, and 3.3. As in 1913, measles caused a higher mortality than either of the other diseases, but in 1914 and 1915 whooping cough had first place. In every year since and including 1910, as well as in several preceding years, measles has caused a greater number of deaths than scarlet fever. The rate for scarlet fever in 1916 was the lowest on record, while that for whooping cough, although considerably below the highest recorded rate for that disease—15.8 in 1903—was far above the lowest—6.5 in 1904.

Acute Poliomyelitis.—Acute anterior poliomyelitis, comomnly called infantile paralysis, caused 7130 deaths in 1916, representing a rate of 10 per 100,000 population. This disease developed in epidemic form in that year, and the resultant mortality showed an enormous increase. The rate from infantile paralysis declined from 2.7 per 100,000 in 1910—the first year in which this malady was reported separately as a cause of death—to 1 per 100,000 in 1915, the decrease having been continuous from year to year, except for an increase between 1911 and 1912. The rate for 1916, however, was ten times as great as that for the preceding year.

Of the 26 states in the registration area in 1916, the 5 showing the highest rates reported 75% of all the deaths from this cause. These states, with their rates, were New Jersey, 41; New York, 32.8; Connecticut, 19.2; Massachusetts, 12.5; and Maryland, 8.1. The next highest 5 rates appear for Pennsylvania, 7.8; Rhode Island, 7; New Hampshire, 5.6; Montana, 5.2; and Michigan, 4.9.

Accidents and Injuries.—The deaths resulting from accidents in 1916 numbered 60,071, corresponding to a rate of 83.9 per 100,000 population. This rate is considerably in excess of that for 1915 (76.3). The most marked increases appear for deaths due to railroad and to automobile accidents, and for those resulting from the effects of heat.

The rate for deaths from railroad accidents in 1916 (11.3) exceeds the corresponding rates for 1914 and 1915 (10.7 and 9.9, respectively), but, with these exceptions, is the lowest one recorded since 1906, the first year for which deaths from this cause were reported separately.

Deaths from automobile accidents and injuries in 1916 totaled 5193, or 7.3 per 100,000 population. As might be expected, in view of the enormous increase in the number of automobiles in use, the death rate due to these causes has advanced continuously since 1906—the first year for which they were reported separately—when it stood at 0.4 per 100,000 population.

Deaths resulting from street-car accidents in 1916 numbered 1775, or 2.5 per 100,000. This rate is the same as that for 1914, but shows an increase as compared with 1915. During the past 10 years, however, there has been a material falling off in the rate for this cause.

Machinery accidents caused 1624 deaths in 1916, or 2.3 per 100,000 population, this rate being somewhat greater than those for the preceding two years—1.9 for 1915 and 2 for 1914.

The number of deaths from mine accidents and injuries in the registration area in 1916 was 2119, corresponding to a rate of 3 per 100,000. The deaths from these accidents for the last three years show a material decline as compared with those for the preceding 10 years.

There were 2056 deaths in 1916 from the effects of heat, the rate being 2.9 per 100,000 population. This is the highest rate shown for this cause in the last 15 years, with the exception of that for 1911, which was 5.3.

Suicide.—The number of suicides reported for 1916 was 10,162, or 14.2 per 100,000. This rate is the lowest for the past 10 years.

Deaths Caused by Firearms.—The total number of deaths due to the use of firearms in the registration area in 1916 was 8240, corresponding to a rate of 11.5 per 100,000. Of these deaths, 3386 were suicidal, 3241 were homicidal, and 1613 were accidental. The suicidal use of firearms shows a decline as compared with 1915 and 1914; their homicidal use decreased as compared with 1914, but increased as compared with 1910, 1911, 1912, and 1915, and the rate was the same as for 1913; and the frequency of accidental deaths due to their use shows a slight decline during recent years."

THE FIRST SEMIANNUAL REPORT OF THE WAR COUNCIL OF THE AMERICAN RED CROSS.

On behalf of the War Council of the American Red Cross, appointed by President Wilson, May 10, Henry P. Davison, chairman, has made public the report to the American people on the present state of the War Fund and the work which is being done by the American Red Cross in this country and different parts of the world. The report, in part, is as follows:

"*To the American People:*

The Red Cross War Council herewith reports on the work of the Red Cross during the almost six months which have elapsed since its appointment by the President.

Included herein are details as to collections on account of the War Fund and appropriations made from the fund, up to November 1, 1917.

The growth of Red Cross activities among the suffering civilian populations in the different allied countries is, up to this time, the outstanding feature of Red Cross work in this war. The magnitude of the work in France is particularly impressive.

Broadly speaking, the Red Cross War Council has proceeded upon the theory that the present work of the American Red Cross should contribute to these great aims:

1. To be ready to care for our soldiers and sailors on duty wherever and whenever that care may be needed.

2. To shorten the war—by strengthening the morale of the allied peoples and their armies, by alleviating their sufferings in the period which must elapse until the American army can become fully effective abroad.

3. To lay foundations for an enduring peace—by extending a message of practical relief and sympathy to the civilian population among our Allies, carrying to them the expression of the finest side of the American character.

The American people have generously supported the work of the Red Cross, and this report of activity is given with great fullness in the hope that through it the public may realize both the obligation and the opportunity which the future presents.

The American Red Cross is attempting to respond to the most beseeching and far-reaching appeal ever made for mercy and relief.

The American people are today the richest people in the world, the richest in resources, richest in obligations and in opportunities. The Red Cross aims to mobilize the hearts and souls of America toward binding up the wounds of a bleeding world.

Up to date, approximately $88,000,000 in cash has been collected for the War Fund. The demands, however, in Europe, are increasing with great rapidity, and on the present basis of expenditure the $100,000,000 War Fund cannot last much beyond spring.

Following the preliminary report recently made on the work in Europe of the American Red Cross, the War Council presents herewith a summary of the work of the Red Cross, both in the United States and in Europe, from May 10, 1917, to November 1, 1917.

During this period the War Council appropriated from the War Fund (including $7,659,000 advanced to chapters for purchase of material and to be returned to the War Fund), $10,969,216.60 for work in the United States, as contrasted with the appropriation of $27,885,816.86 for work abroad, of which $20,601,240.47 was for use in France.

There have been appropriated from funds restricted to specific purposes, $1,417,625.74. As $7,659,000 advanced by the War Council is to be returned to the War Fund, the net appropriations amount to $32,613,659.20.

The total expenses of raising and collecting the War Fund are proving to be less than one per cent. The War Fund is deposited locally by the chapters and campaign committees. About 3500 banks now hold these deposits, in the name of William G. McAdoo, Treasurer.

Forty-nine Army base hospital units and five for the Navy have been recruited, organized and equipped by the Red Cross. More than twelve of the Army units and two of the Navy units have now been mustered into their respective Medical Corps and are seeing service. These units can care for a 500-bed hospital each, and some of them have been reinforced to enable them to take over larger hospitals.

The Red Cross has also organized 45 ambulance companies, with a total personnel of 5580, all of which have been taken into the Army Medical Corps, some for service abroad, others for the camps and cantonments. A General Hospital, for the use of the Navy, has been established at Philadelphia. Convalescent homes have been built at Fort Oglethorpe and Fort McPherson, Georgia, and mobile laboratory cars are to be provided for use in case of emergencies at the camps.

Through its Sanitary Service, the Red Cross is coöperating with local health authorities in maintaining the best possible sanitary conditions in the zone just outside military jurisdiction at the training camps and cantonments. Twenty sanitary units have been organized for this purpose.

The Red Cross has placed field directors of Camp Service at thirty-eight camps, cantonments and naval stations. The purpose of the Camp Service is to coöperate with all the agencies that are advancing the welfare of the enlisted men.

The Red Cross has continued its work of disaster relief during the war, and has rendered aid in 64 calamities. Recently a call for help for flood victims in Tien-tsin was answered by the dispatch of a relief expert to the city and the sending of $125,000.

Fourteen thousand Red Cross nurses have been enrolled for duty, and approximately 3000 have already been called into active nursing service, of whom 2000 are working abroad.

A program for increasing the reserve of fully trained nurses for war service has been adopted, in concert with the Committee on Nursing of the Council of National Defense and other nursing authorities.

Millions of women have been mobilized for work on surgical dressings, hospital garments, refugee clothing, knitting garments, and comfort kits. It is estimated that the value of their work during the next twelve months will amount to nearly $40,000,000.

Since April 1, 1917, the Red Cross has sent abroad 13,336 cases of surgical dressings, hospital supplies and clothing, containing approximately 13,000,000 separate articles. The Red Cross has promised to send 3,000,000 surgical dressings to France every month for the next six months.

Courses of instruction in elementary hygiene and home care of the sick, home dietetics, and first aid have been given throughout the United States. More than 34,000 women have completed the first of these courses, and 75,000 certificates of proficiency in first aid have been issued during the past year alone.

This work in the United States has been directed from National Headquarters by a completely reorganized administration. Under the

direction of the War Council, a general manager, Harvey D. Gibson, president of the Liberty National Bank, has been given general charge of the work in this country. He has delegated the direct oversight of the chapters, of which there are now 3287, to division managers.

At National Headquarters in Washington a staff has been built up which included, on November 1, 1917, sixty-three officials, most of them business men and women of great experience in large affairs, who are working without payment of either salary or living expenses.

Numerous others are either giving their time or are working for nominal pay. The membership has grown, since the war, from about 200,000 to more than 5,000,000. The salary list has been reduced since last July from about 700 to about 425. Salaries have decreased also in average amount. Had the Red Cross been obliged to pay salaries to all the heads of departments at National Headquarters, the present organization would have been impossible.

A new class of members, the Junior Red Cross, has been created for school children, who are admitted by school units, to a share in Red Cross membership and relief work upon payment of a membership fee of twenty-five cents per pupil.

The direct appropriations from the War Fund for work in the United States are divided as follows:

Hospitals, etc	$503,500.00
Sanitary Service	184,500.00
Camp service, etc.	2,528,729.00
Miscellaneous	93,487.60
	$3,310,216.60

The work of the Red Cross in Europe centers necessarily in France, and Major Grayson M.-P. Murphy, a member of the War Council, is head of the Commission to France and Commissioner for Europe. Headquarters are in Paris, in a building furnished free for the current year for the use of the Red Cross. The working staff in France numbers 864 persons, of whom only 347 are paid by the Red Cross. The others are volunteers, or are paid by their former employers or from funds privately subscribed, so that the average cost to the Red Cross is only about $300 per year for each worker.

The principal purposes of the work of the American Red Cross abroad may be summarized thus:

1. To do everything possible to assist our Army and Navy in insuring the health and comfort of American soldiers and sailors abroad, and

2. To relieve suffering among the armies and destitution among the civilian populations among our Allies.

The establishment and maintenance in France of canteens, rest houses, recreation huts, and other means of supplying comforts in the armies of our Allies have been the means of heartening them and keeping their men in the field until our men could become fully effective.

The details which follow here are supplemental to those given in the report issued in September:

Work for the American Army is the first and most important part of the Red Cross program in France. More than twelve base hospitals organized by the Red Cross and now mustered into the Army Medical Corps, are in service in France. The Red Cross is also administering, under Army control, the hospital at Neuilly formerly known as the American Ambulance, together with Dr. Joseph A. Blake's hospital in Paris.

The Red Cross is serving 3423 military hospitals, both French and American, through the Hospital Supply Service, which operates sixteen warehouses and a motor transport system. Approximately 15,000 tons of material—hospital and general relief supplies—are distributed monthly from these warehouses. The Surgical Dressings Service reaches 2000 hospitals. American workshops in France will manufacture nitrous oxide, repair hospital apparatus, make splints and hospital appliances.

An appropriation of $100,000 has been made to enable the American doctors now in France to procure suitable buildings. Special laboratory equipment and animals for experimental purposes, for special military medical research work looking toward the recognition and study of diseases among soldiers, the eradication of lice, fleas and scabies, the treatment of trench nephritis, trench heart, war neurasthenia, exhaustion, lethal gases, shell concussion, wound infection, compound fractures, etc. The recommendation for this, like all others of a medical nature, was submitted to an advisory medical board composed of leading American doctors working with our own forces. They approved it.

The question has been raised as to whether the appropriation for medical research was not outside the proper scope of Red Cross activity. The answer is simple. The supreme aim of the Red Cross is to relieve human suffering growing out of the war. The Red Cross was advised from the ablest professional sources that an immediate appropriation for medical research would contribute toward that end. The War Council could not disregard such advice.

All recommendations to the Red Cross War Council of medical, surgical or hospital character are, before being made by the Commission to France, submitted to the advisory medical board in France, and they are also laid before the medical advisory board in this country by the War Council. It thus has at its disposal in these vital matters the most expert advice obtainable.

All expenditures under this appropriation must first have the recommendation of the chief medical officer of the American expeditionary force, Brig.-Gen. A. E. Bradley.

Relief of refugees throughout the devastated zone has been undertaken by the Red Cross. Relief warehouses have been placed at strategic points behind the lines, from which food, clothing, household goods, agricultural implements and tools are being distributed to the returning refugees. Foodstuffs to the value of $2,870,300 have already been bought in France or shipped there for military and civilian relief.

In good agricultural districts the Red Cross is coöperating with the French government and with American and English friends in assisting the population of ruined villages to begin repair of houses, etc.

At Evian, where French refugees, mostly women and children, who have been held prisoners behind the German lines, are returned to France, the Red Cross has provided motor ambulances for the transportation of the sick and feeble and has opened children's hospitals. Hundreds arrive there almost daily—destitute and sick.

Special work has been begun for mothers, infants and children. The Red Cross has sent three detachments of children's specialists to care for babies and expectant mothers, in the hope of checking the increase in infant mortality.

At two centers the Red Cross is caring for orphans and children from bombarded villages. A large refuge has been opened at one, at which sick and neglected children are being given expert medical care. From the other a travelling dispensary and shower bath is being sent out daily to make the rounds of the nearby villages.

Included in appropriations for France are the following:

Budget for military relief, including work for the American Army, hospitals, canteens, hospital supply service, surgical dressings service, casualty service, etc., to November 1, $2,411,225; budget for civilian relief, including refugee and reconstruction work, relief of mutilated soldiers, infant welfare, tuberculosis prevention, etc., to November 1, $2,460,467; budget for Department of Administration in Paris and Planning Department, to November 1, $119,590; additional appropriations, for hospitals, etc., $1,407,578.25; additional appropriations for transportation service, $1,423,598.90; other appropriations, $12,778,780.85.

In addition to the Commission to France, commissions were sent to investigate conditions and extend immediate relief in Russia, Roumania, Serbia and Italy. The Russian Commission has completed its survey, and some of its members have returned to the United States, leaving an operating organization in Petrograd.

The Italian Commission has also returned to the United States, and an operating commission is to be sent to Italy as quickly as possible.

The Commission to Italy used an appropriation of $200,000 for immediate relief in that country. The Red Cross acted promptly when the Italians were forced to retreat, pledging its aid through Ambassador Page and placing a special relief fund of $250,000 at its disposal. This was later raised to $750,000.

Commissions are at work in Roumania and Serbia. A commission and deputy commission have been assigned to England, and a special department has been set up for Belgium.

In Belgium the work of the Red Cross, which is confined to the part of the country still held by the Allies, is chiefly in coöperation with the relief interests of the King and Queen. The Red Cross is assisting Belgian hospitals and children's refugees, aiding Belgian villagers to re-establish themselves in the devasted zone left by the retreating Germans, and helping to care for Belgian children, both in Belgium and in France and Switzerland.

The work of the Red Cross in Russia centers on the medical and surgical needs of the army. Several shipments of drugs and hospital supplies have been made, and a unit of 125 motor ambulances has been sent to Russia. The Red Cross has shipped two million pounds of condensed milk for the use of mothers and children in the large cities.

The total appropriations (cents omitted), for the work outside of France up to November 1, are as follows:

For Belgium	$720,001
For England	1,066,520
*For Italy	214,000
For Russia	1,359,440
For Roumania	1,518,398
For Serbia	493,203
For Armenians and Syrians	1,800,000
Other appropriations	113,012
Total	$7,284,574

* Later the War Council appropriated $750,000 for emergency relief in Italy.

WEEK'S DEATH RATE IN BOSTON.—During the week ending Jan. 12, 1918, the number of deaths reported was 314, against 270 last year, with a rate of 20.87 against 18.23 last year. There were 48 deaths under one year of age, against 37 last year.

The number of cases of principal reportable diseases were: diphtheria, 85; scarlet fever, 39; measles, 124; whooping cough, 60; tuberculosis, 36.

Included in the above were the following cases of non-residents: diphtheria, 15; scarlet fever, 3; tuberculosis, 4.

Total deaths from these diseases were: diphtheria, 9; scarlet fever, 2; measles, 2; whooping cough, 3; typhoid fever, 1; tuberculosis, 21.

Included in the above were the following non-residents: diphtheria, 3; scarlet fever, 1; measles, 1; typhoid fever, 1; tuberculosis, 19.

Correspondence.

NAVY'S CALL FOR BINOCULARS, SPY-GLASSES AND TELESCOPES—"THE EYES OF THE NAVY."

Navy Department, Assistant Secretary's Office,
Washington, January 7, 1918.

Mr. Editor:—

The Navy is still in urgent need of binoculars, spy-glasses and telescopes. The use of the submarine has so changed naval warfare that more "*eyes*" are needed on every ship, in order that a constant and efficient lookout may be maintained. Sextants and chronometers are also urgently required.

Heretofore, the United States has been obliged to rely almost entirely upon foreign countries for its supply of such articles. These channels of supply are now closed, and, as no stock is on hand in this country to meet the present emergency, it has become necessary to appeal to the patriotism of private owners to furnish "*eyes for the navy.*"

Several weeks ago, an appeal was made through the daily press, resulting in the receipt of over 3000 glasses of various kinds, the great majority of which has proven satisfactory for naval use. *This number, however, is wholly insufficient, and the Navy needs many thousands more.*

May I, therefore, ask your coöperation with the Navy, to impress upon your subscribers, enther editorially, pictorially or in display, by announcing, in addition to the above general statement, the following salient features in connection with the Navy's call:

All articles should be securely tagged, giving the name and address of the donor, and forwarded by mail or express to the Honorable Franklin D. Roosevelt, Assistant Secretary of the Navy, care of Naval Observatory, Washington, D. C., so that they may be acknowledged by him.

Articles not suitable for naval use will be returned to the sender. Those accepted will be keyed, so that the name and address of the donor will be permanently recorded at the Navy Department, and every effort will be made to return them, with added historic interest, at the termination of the war. It is, of course, impossible to guarantee them against damage or loss.

As the Government cannot, under the law, accept services or material without making some payment therefor, one dollar will be paid for each article accepted, which sum will constitute the rental price, or, in the event of loss, the purchase price, of such article.

Toward the end of January it is proposed to distribute throughout the country, posters making an appeal to fill this want of the Navy.

As this is a matter which depends entirely for its success upon publicity, I very much hope that you will feel inclined to help the Navy at this time by assisting in any way that lies within your power.

Very sincerely yours,
FRANKLIN D. ROOSEVELT,
Assistant Secretary of the Navy.

DOCTORS AND THE MEDICAL RESERVE CORPS.

Lowell, Mass, January 4, 1918.

Mr. Editor:—

In reading your editorial on "Every Doctor in the Medical Reserve Corps," in the January 3 issue of the JOURNAL, I agree with you that it would be an ideal condition, but difficult to attain because there are two sides to the question and perhaps my own case will illustrate the other side, and has been used against myself when I have tried to persuade eligible men to join the Corps.

I was commissioned a first lieutenant, June 5, 1917, and am still at home, since which date I have been in suspense, not knowing when I would be called. In July the lease of my office expired and, not caring to renew it at advanced rates for three years (which I would have done if not in the Corps), I was forced to move. I have lost considerable business through people assuming I had gone away and others not caring to engage me for future work, not knowing if I should be here when wanted.

It has been annoying, to say the least, and a number of men I have spoken to do not care to suffer this suspense and annoyance at this time, but would join if the Government would state definitely when they were wanted.

Now, I am not complaining or finding fault. I have simply done my duty as I saw it, my Bit and Best, and I ought to know something about the game of war and the duties of a good soldier, having started the study of military tactics about 25 years ago in high school, served in the Spanish-American War and later in the State Militia. If called tomorrow, I go; and if never called, am content, but I have to admit that it is disconcerting not to know where I may be two weeks hence, and my medical friends that have not learned discipline refuse to join under present conditions.

Yours truly,
CLARENCE B. LIVINGSTON.

SOCIETY NOTICES.

THE NORFOLK DISTRICT MEDICAL SOCIETY.—A regular meeting of the Society will be held at the Roxbury Masonic Temple, 171 Warren St., January 29, at 8.00 P.M. sharp. Phone Roxbury 22753.

Business.
Communication: "Cancer," John T. Bottomley, M.D.
Collation.

BRADFORD KENT, M.D., *Secretary.*
798 Blue Hill Ave., Dorchester.

NEW ENGLAND PEDIATRIC SOCIETY.—A meeting of the New England Pediatric Society will be held at the Boston Medical Library on Feb. 1, 1918, at 8.15 P.M. The following papers will be read:

1. President's Address, Charles Hunter Dunn, M.D., Boston.
2. Clinical Spasmophilia, William W. Howell, M.D., Boston.
3. Experimental Studies on Growth after Feeding Certain Ductless Glands, Warren R. Sisson, M.D., Boston.

Light refreshments will be served after the meeting.

CHARLES HUNTER DUNN, M.D., *President,*
RICHARD M. SMITH, M.D., *Secretary.*

GENERAL MEETING OF THE BOSTON MEDICAL LIBRARY IN CONJUNCTION WITH THE SUFFOLK DISTRICT MEDICAL SOCIETY.—Owing to the military duties of Dr. Taylor of Washington, D. C., he was unable to come to Boston on January 16, 1918, and the meeting arranged for that date was therefore postponed.

W. B. ROBBINS, M.D.

NOTICE.

BOSTON MEDICAL LIBRARY.—In view of the serious coal situation now existing in New England, and to conform to the recommendations of the Fuel Administrator dated Jan. 9, 1918, the library hours will be as follows until further notice:

Open daily except Monday, Sunday and Holidays. 9.30 A.M. to 5 P.M.

Closed all day Monday. Closed evenings.

January 14, 1918. WALTER L. BURRAGE, *Secretary.*

RECENT DEATHS.

DR. THOMAS D. CROTHERS of Hartford, Conn., died on January 13. He was born in New York in 1842. Since 1875 he had been secretary of the Association for the Study and Care of Inebriates, and he was also editor of *The Journal of Inebriety.* In 1900 he was made professor of nervous diseases by the New York Medical School. He was also dean of the College of Physicians and Surgeons of Boston.